

Spotlight on Quality

**Statistics on Profitability of UK
Companies and Gross Operating
Surplus of non-financial
corporations produced by the
Office for National Statistics**

Assessment Report 383

January 2024

Office for Statistics Regulation

We provide independent regulation of all official statistics produced in the UK. Statistics are an essential public asset. We aim to enhance public confidence in the trustworthiness, quality and value of statistics produced by government.

We do this by setting the standards they must meet in the [Code of Practice for Statistics](#). We ensure that producers of government statistics uphold these standards by conducting assessments against the Code. Those found to comply with the standards of trustworthiness, quality and value in the Code are given accredited official statistics status (called National Statistics in the Statistics and Registration Service Act 2007). We also report publicly on system-wide issues and on the way statistics are being used, celebrating when the standards are upheld and challenging publicly when they are not.

Executive Summary

What we found

- ES.1 ONS is one of a few National Statistical Institutes (NSIs) that produces estimates of Profitability and Gross Operating Surplus (GOS) directly. Many countries implicitly produce GOS data as a residual balancing item of the Gross Domestic Product (GDP) income components. The countries that explicitly compile annual estimates use both administrative sources and survey data on company profits (to ensure coherence of results), with a series of adjustments to align such estimates to [National Accounts concepts](#). The challenge of finding reliable and timely data sources to estimate Profitability and GOS statistics means that few NSIs produce quarterly estimates of these statistics using data inputs. Users told us they relied on ONS's quarterly GOS estimates to forecast fiscal and monetary policies.
- ES.2 ONS needs to work with data suppliers to understand the quality of data sources used to compile Profitability and GOS estimates. ONS uses many data sources to adjust the administrative data sources and some of these adjustments have remained unchanged since 2010, despite [changes to tax rules over the years](#). Except for HM Revenue and Customs (HMRC), ONS does not have regular or direct contact with its non-ONS data suppliers, indeed for some sources, data are taken directly from a website. Therefore, ONS has little information on how these data sources are quality-assured when they are compiled and this has led some users to question the quality of the statistics. During our review ONS reached out to HMRC to better understand how it adjusts gross trading profits data.
- ES.3 We found that the production processes don't facilitate sufficient interaction between suppliers and end users of the data. For example, several data suppliers we spoke to within ONS were not fully aware of the source of their data or that their outputs were being used to compile estimates of Profitability and GOS. To help with this, the production team would like to bring in technical expertise to review the system and processes and we support this view.
- ES.4 ONS must better document quality information and communicate quality information to users. Users we spoke to were not sure about the concepts, sources and methods used in the production of the statistics, or the adjustments that were applied to GOS estimates as part of producing the statistics. During our review, ONS updated the [Quality, Methods and Information report on the Profitability of UK companies](#) (November 2023). Additionally, ONS published [annual GOS growth rates including and excluding balancing adjustments](#), which supports users in making well-informed decisions when using the statistics. This is a positive first step in communicating quality information, but ONS should go further still, for example by explaining the wide variety of adjustments and quality assurance carried out on Profitability and GOS estimates and their impact on final GOS estimates.
- ES.5 ONS should ensure sufficient knowledge transfer and documentation to ensure business continuity is maintained to minimise the risk of loss of intelligence. In doing so, ONS should improve the resilience and knowledge management of the team and support staff to develop a strong understanding of the statistics they are producing. Meeting the significant demands of ONS National Accounts quarterly production cycles, coupled with a loss of experienced and knowledgeable staff,

has resulted in gaps in the GOS statistics team's understanding of the quality of source data and system processes carried out to produce the statistics.

- ES.6 ONS should engage with users outside of ONS to better understand their needs. Users expressed a need for more-granular industry breakdowns of GOS, similar to those published in ONS [Supply and Use tables](#) and [Capital stocks and fixed capital consumption](#) publications. Users would also benefit from whole economy [estimates](#) of GOS and mixed-income industry breakdowns that ONS supplies to the Organisation for Economic Co-operation and Development (OECD). Some users told us they purchase data from private databases, which use company account information from Companies House. Whilst ONS is aware that some users have demands for additional products that cannot currently be offered by ONS, ONS must be transparent and clear with users, so users understand the reasons why their needs cannot be met.

Next steps

- ES.7 We have identified five requirements for ONS to fulfil to improve the quality of the statistics to the standards required by the Code of Practice. In order to assure users that action is being taken to improve the quality of the statistics ONS should publish a development plan by January 2024 that includes short-term, medium-term and long-term priorities for improving the statistics. To enhance transparency and provide sufficient reassurance to users about its understanding of the sources and methods used to produce the statistics, ONS should make significant progress on requirements 1, 2 and 3 by June 2024. ONS should complete these recommendations and carry out the remaining improvements (requirements 4 and 5) by December 2024.

List of Requirements

Requirement 1: To improve the quality of the statistics, ONS should ensure that it has a good understanding of the quality of the data used to produce the statistics and focus on establishing good relationships with data suppliers. ONS should use our [Quality Assurance of Administrative Data \(QAAD\)](#) guidance to help with its understanding of the data sources and methods used to produce the statistics. To reassure users on the quality of the statistics, ONS should communicate to users its findings on the quality of the data sources and publish these.

Requirement 2: As part of improving the quality assurance of the statistics, ONS should ensure that production processes facilitate sufficient interaction and information sharing on source data quality. ONS should review its production processes and identify how it can accommodate changes such as incorporating new data sources and processes or changes in users' needs.

Requirement 3: To enable all users to make well-informed decisions on the use of Profitability and GOS statistics, ONS should better document quality information and communicate to users: the methods and data sources used; any limitations and uncertainties in the statistics; and quantification and explanation of revisions.

Requirement 4: To reassure users on the quality of the statistics, ONS should demonstrate to users that staff have a strong understanding of data sources,

methods, production processes and how the statistics align with users' needs. In doing so, ONS should review its knowledge transfer process and support business continuity during staff changes, so ONS is reassured staff can respond confidently to users' queries.

Requirement 5: ONS should engage with users of these statistics and seek regular feedback to better understand their requirements and the extent to which the current statistics meet their needs. ONS should use the findings from this ongoing engagement to develop these statistics so that they meet as many key users' needs as possible. Where users' needs cannot be met ONS should be transparent about the reasons for the decisions made and any constraints.

Introduction

Quality-focused assessment

- 1.1 This is our second pilot quality-focused assessment, using the quality framework we have developed. The framework examines four key areas to determine the quality of the statistics: whether the statistics are produced using suitable data sources; appropriate methods; transparent quality assurance; and whether the statistics are sufficiently prioritised and resourced proportionately to their use. We also consider whether the statistics are internationally comparable; and whether the statistics meet the quality needs of users and are not misleading.
- 1.2 To further test our framework, we selected two complementary statistics for review, the [Profitability of UK companies](#) and [Gross Operating Surplus of UK private non-financial corporations](#) (GOS). This enabled us to test the feasibility of completing more than one assessment in parallel, making more-efficient use of resources, while providing due care for the burden the assessment would place on statistics producers.

The relationship between Gross Domestic Product, Gross Operating Surplus and Private non-financial corporations

- 1.3 Gross Domestic Product (GDP) is a measure of the size and health of a country's economy over a period of time (Bank of England). ONS has three different approaches to estimating GDP: the output approach, the expenditure approach and the income approach. To produce its best estimate of GDP, ONS reconciles data from the three different approaches. GOS is a component of the income approach and in 2022, the [PNFCs GOS accounted for 17% of GDP](#).
- 1.4 Private non-financial corporations (PNFCs) produce goods and services for the market and do not, as a primary activity, deal in financial services. These are businesses trading in the private sector as opposed to the public sector and are the focus of this assessment.
- 1.5 Henceforth when we refer to GOS, gross value added (GVA) or other aggregates, we refer only to PNFCs sector of the economy.

The Profitability and Gross Operating Surplus of UK private non-financial corporations

- 1.6 The Profitability of UK companies is the net rate of return on capital employed for UK PNFCs related to their UK operations (as defined in the [ONS bulletin](#)). Rates of return are presented as ratios of operating surplus compared with capital employed, expressed as percentages. The numerator for estimates of rates of return is GOS and the denominator is capital employed. These ratios measure the accounting rates of return achieved in a particular year from the total capital employed. ([ONS Quality and Methodology Information \(QMI\)](#)). This relationship is illustrated in Figure 1.

Figure 1: Profitability of UK PNFCs

$$\textit{Profitability of UK companies} = \frac{\text{Gross Operating Surplus (GOS)}}{\text{Capital employed}}$$

- 1.7 Profitability measures profits in relation to an economic or financial factor. As there is no internationally recognised definition it can be measured in many ways. Organisations like the ONS analyse the whole economy and high-level industry groups such as manufacturing and services. Thus, they measure Profitability using the return from capital employed and GOS for the whole economy or sector analysis. Organisations such as market consultancies that are analysing profits at a firm or industry level, measure Profitability by estimating profit shares, profit mark-ups and profit margins, these are concepts that align with accounting frameworks. These vast methodological differences make it hard to compare Profitability statistics. This is echoed in the European Central Bank’s research paper titled [“Measuring and analysing profit developments in the Euro area”](#) which concluded that “the measurement of profits at a macroeconomic level is subject to a high degree of uncertainty” and noted that “different practices regarding the compilation of profitability statistics make them difficult to compare.”
- 1.8 GOS is defined in the ONS [guide to UK National Accounts](#) as the balance between GVA and labour costs paid by producers. GOS estimates are compiled using gross trading profits (GTP) of PNFCs, adjusting them for income from the rental of buildings and holding gains and losses (which are changes in the value of stocks caused by price changes) and other conceptual adjustments to convert the company trading profits into the economic concept of GOS used in National Accounts.
- 1.9 Capital employed is company investment added together for all assets that are still in use (based on the estimates of the asset’s life) to give “gross capital stock”. The consumption of fixed capital is the amount of capital resources used up in the process of production in any period. Capital employed and capital consumption data come from ONS’s [Capital stock and capital consumption release](#).
- 1.10 PNFCs include the UK Continental Shelf (UKCS), the area where the UK claims mineral rights beyond territorial waters and other non-UKCS companies. UKCS companies are capital-intensive and require high levels of capital investment to operate. ONS splits the non-UKCS sector for these statistics into manufacturing companies; companies providing non-financial services; and other industries (including construction, electricity and gas supply, agriculture, mining and quarrying).

Statistics on Profitability and Gross Operating Surplus of UK private non-financial corporations

- 1.11 ONS publishes statistics about the Profitability of PNFCs in the following ways:

- A [statistical bulletin](#) with supporting datasets, published around five months after the end of the quarter to which the statistics relate. The package contains estimates of net rates of return on capital for PNFCs, split into UKCS and non-UKCS, manufacturing and services. In November 2023 ONS announced via a notice in the bulletin, that the frequency of this release will be moving from quarterly to annual.
- A [dataset](#) which starts from 1997 and provides quarterly headline estimates on: PNFCs total assets; oil and gas; manufacturing and services capital consumption. In addition, estimates are provided for gross and net GOS, capital employed, and rates of return for PNFCs, UKCS, non-UKCS, manufacturing and services sectors.
- A [rates of return and revisions tables of UK PNFCs by quarter](#).

1.12 ONS publishes PNFCs GOS estimates as a [quarterly dataset](#), published around three months after the quarter to which the statistics relate. The dataset includes annual GOS estimates from 1948 and quarterly GOS estimates from 1955.

The production of Profitability and GOS statistics

Data sources

- 1.13 Estimates of GOS are produced twice per quarter as part of the [quarterly National Accounts](#) compilation process. A provisional GOS estimate of “corporations” (including financial and PNFCs) is produced for the quarterly estimate of GDP. A second revised estimate of the GOS of UK PNFCs, which incorporates updated or revised data, is produced for the quarterly National Accounts. The second revised estimate is published as part of the Profitability of UK Companies (PNFCs) statistical bulletin.
- 1.14 To produce quarterly Profitability estimates, ONS uses contextual data from other GDP data sources as well as data from wider industry to inform a growth figure and balancing process. The Index of Services and the Index of Production are used to ensure a representative split between manufacturing and services. Previously, the quarterly operating profits survey (QOPS) was the key data source for the quarterly Profitability and GOS estimates. QOPS was discontinued in April 2020, due to concerns about the relatively small sample size (approximately 1,650 businesses), data quality and methodology, all of which affected the quality of the survey estimates.
- 1.15 In addition to the ONS sources, ONS describes in the QMI that it uses additional supplementary anecdotal information (to ensure the estimates reflect current economic conditions) taken from various surveys including: the Bank of England’s [Agents’ summary of business conditions](#); The British Chambers of Commerce’s [Quarterly Economic Survey](#); Ernst & Young’s [Profit warnings](#) and Trading Economics [Purchases Managers Index](#). A complete list of data sources used to triangulate quarterly estimates of Profitability and GOS can be found in Annex A1.
- 1.16 The largest non-ONS source used to produce the annual GOS estimates comes from administrative data on company trading profits. HMRC collects annual information on companies’ gross trading profits (GTP) as part of the tax collection process. GTP includes the part of a company’s income arising from trading activities in the UK. These exclude income from other investments or means, such

as earnings from abroad and are calculated before payments of dividends, interest and tax. Over 98% of all industrial and commercial businesses' data are collected via their statutory tax returns (Profitability QMI). These data provide ONS with an annual benchmark for company profits, after which ONS applies a growth figure to estimate subsequent quarters. ONS receives HMRC GTP with a lag of approximately two years because of the time given to companies to report profits and for returns to be processed by HMRC.

- 1.17 In addition, ONS uses additional HMRC data to produce annual GOS estimates. For example, Schedule A taxation records are used for data on the taxes on trading income from UK land and data on quasi-corporations (unincorporated partnerships) are sourced from self-assessment taxation records (tax deducted automatically from wages and pensions). ONS uses other sources from specific industries to estimate annual GOS, for example, data about the farming industry are sourced from the Department for Environment Food and Rural Affairs.
- 1.18 To produce annual Profitability estimates, ONS uses data from the Annual Business Survey to apportion the whole economy GOS estimate between manufacturing and service industries. Oil and gas output and prices data are sourced from the Department for Energy Security and Net Zero (DESNZ) Energy Trends National Statistics datasets and are used by ONS to provide the proportional splits between UKCS and non-UKCS businesses. Data on Natural Gas prices are sourced online from the gas transmission data supplied by National Grid. The data obtained are used to determine total income (total sales multiplied by price) and total expenses. Estimates of UKCS GOS are calculated by the deduction of total expenses from total income. A complete list of data sources used in the production of annual estimates of the GOS of PNFCs can be found in Annex A2.

Methods and adjustments

- 1.19 HMRC GTP data are collected on a business accounts basis, however, due to the conceptual differences between business accounts and National Accounts, ONS applies a series of conceptual adjustments to HMRC GTP data. In total, over 30 adjustments are made in the production of annual GOS estimates, to align GTP data to the National Accounts concept of GOS.
- 1.20 In many cases, data used to adjust administrative data such as HMRC GTP data are sourced from a survey. For example, Gross Fixed Capital Formation (GFCF) data are collected via the Quarterly Acquisitions and Disposals of Capital Assets Survey, which collects quarterly information on the value of capital assets bought and sold by businesses in the UK within the private sector. The Quarterly Stocks Survey collects quarterly information on the value of stock held by businesses in the UK within the mining and quarrying, manufacturing and repair, energy, construction, motor trades, wholesale and retail industries. In other cases, data are from multiple sources, for example, interest payable on bonds and loans is sourced from ONS financial services surveys and Bank of England surveys. Data used to adjust insurance premiums, interest paid on loans and bonds and Financial Intermediation Services Indirectly Measured (FISIM) are mainly sourced from ONS financial services surveys, however, these data are supplemented with data from the Bank of England Agents' summary of business conditions survey.
- 1.21 In addition to conceptual adjustments, ONS carries out extensive adjustments (relating to issues such as tax evasion and VAT fraud) to account for where the

data are considered incomplete, or where it considers companies are over or under-reporting profits. Other factors such as late responses, or new government policies, such as the Energy Price Guarantee, are also considered when preparing the data. Further balancing adjustments are carried out to ensure the final annual GDP income estimate is balanced to align with the GDP output and expenditure estimates. A complete list of the data adjustments can be found in Annex A3.

Systems and processes

- 1.22 Many of the data used to adjust the administrative data in the annual estimates are sourced from ONS supplier teams via a centralised processing system. The Central ONS Repository for Data (CORD) is used to produce Profitability and GOS estimates, consistent with most National Account aggregates. CORD enables data suppliers from within ONS to upload individual series in a central data repository, allowing other ONS users to pick up the same datasets and variables coherently. CORD is also used for applying adjustments to the data (such as seasonal adjustments). ONS sources are extracted automatically from CORD, while non-ONS sources are inputted to CORD manually.
- 1.23 The GDP compilation team is responsible for collating quality information on the data series inputs to GDP from other ONS statistics teams. The GDP compilation team is also responsible for disseminating quality information to all ONS compilers.
- 1.24 There are some automated statistical and analytical processes, within the production process of Profitability and GOS estimates. For example, when estimates from data sources are uploaded into CORD, validation checks are automatically carried out to check for any discrepancies in the data.
- 1.25 Excel is used to produce the datasets published on the ONS website. It is also used in the quality assurance of data in the form of checklist templates. For example, a centralised Excel spreadsheet is used by statistics production teams to add any queries they have regarding the data.

Quality Assurance

- 1.26 Documentation such as desk instructions and quality assurance templates are provided to guide new members of staff, which are reviewed and updated regularly to ensure they remain up to date. Included in the desk notes are outcomes from any review meetings (which feature throughout the production process) to identify any known issues and how they should be rectified.
- 1.27 The GOS production team receives data from administrative sources, such as insurance premium data from the Bank of England, and from other ONS statistics production areas. It is the responsibility of the GOS team to notify these ONS data suppliers of any quality issues affecting these deliveries. Although the Bank of England provides a brief alongside the data, ONS has a designated team that liaises with the Bank to raise queries regarding any anomalies in the data supplied. However, this team acts as a liaison communicating with the Bank, rather than being involved in the quality assurance process.

Uses of GOS statistics

- 1.28 GOS is a key component of the GDP estimate, accounting for over 17% of the GDP income measure in 2022. Annual estimates of GOS are included in the [UK National Accounts Blue Book](#) dataset. Quarterly estimates of GOS are produced for month two and month three of the quarterly GDP release and are included in the [GDP first quarterly estimate time series](#) dataset. Quarterly estimates of GOS are also included in the [UK Economic Accounts PNFC](#) datasets which are supplied to international organisations such as the OECD.
- 1.29 GOS statistics are used by the Financial Policy Committee (FPC) at the Bank of England to monitor cyclical systemic security risk, as defined in [Capital Buffers and Macro-prudential Measures Regulation \(2014\)](#). The data also feature in the Bank's [financial stability reports](#).
- 1.30 GOS estimates are used by ONS in productivity analysis, including capital services, as well as analysing the share of GOS as a proportion of GVA and tracking the long-term labour share trends, making international comparisons. GOS has also been used by the Bank when analysing Profitability in a time of high inflation.
- 1.31 The Office for Budget Responsibility (OBR) uses GOS statistics to make its profit forecasts, which are supplied to the Chancellor of the Exchequer to inform fiscal policy. The OBR also provides profit forecasts to HMRC, enabling HMRC to analyse incoherences between cash returns compared with National Accounts (accruals) estimates.
- 1.32 Other government departments such as HM Treasury use GOS for monitoring, informing and delivering well-informed economic policy advice.
- 1.33 Academics use GOS to analyse the effects of various economic events on the economy such as trade union strikes, the contributions of profit markups to inflationary shocks and the affordability of firms introducing a four-day working week.

International Comparisons

- 1.34 ONS is one of a few NSIs that explicitly publishes annual GOS estimates for PNFCs. Ireland Central Statistics Office (CSO) publishes annual estimates of GOS using a similar approach to ONS by using administrative corporation tax data as the key source and using survey data to carry out adjustments. Other G7 countries such as Canada calculate GOS as part of its National Accounts process, but it is not compiled explicitly from survey and administrative sources, instead GOS is a residual of GDP income. The US Bureau of Economic Analysis (BEA) publishes net operating surplus, by estimating a rate of return per industry, which gives greater granularity. Separately the BEA publishes GVA for PNFCs, from which GOS can be calculated.
- 1.35 Given the practical challenges of finding suitable data sources to produce reliable estimates of Profitability and GOS, few countries produce quarterly estimates. Ireland CSO publishes experimental quarterly estimates of corporate profits and Statistics Canada publishes estimates of Profitability every quarter and separately publishes income-based quarterly estimates of GDP, of which GOS is a residual. Annex B summarises the outputs of some other countries' NSIs.

Findings

Data sources and methods

ONS should work with data suppliers to better understand the quality of source data

- 2.1 The GOS statistics team acknowledged that it needs additional methodological expertise, having experienced a loss of expertise in recent years. The team didn't fully reassure us that it had a comprehensive understanding of the data sources or methods used to produce the Profitability or GOS estimates or whether the adjustments that are applied are still fit for purpose. For example, the team was unable to demonstrate to us an understanding of how the adjustments it makes to HMRC GTP data contributed to improving the quality of annual GOS statistics. ONS uses many data sources to make adjustments on the way to producing the annual GOS estimates and needs to be able to explain clearly to users the reasons for the adjustments. For some non-ONS sourced data, such as data from the Bank of England on interest paid on loans and bonds, it is not clear to ONS how the data are used in the estimates of GOS. We also found that Supply and Use table adjustments (which aim to reconcile the differences between the three approaches of estimating GDP: production, income and expenditure) to GOS are mainly negative, which may suggest a bias in these estimates.
- 2.2 ONS has conducted various reviews, for example in 2018, to better understand the adjustments it applied to HMRC data and the potential use of VAT data as a more-timely indicator of quarterly GOS. In 2020 the ONS Data Science Campus (DSC) reviewed whether this data could be used to estimate GOS. ONS told us that the DSC review found that an alternative method using HMRC tax data was unworkable due to concerns including timeliness, reproducibility and quality. ONS told us that there was no written report and that the findings were not officially recorded.
- 2.3 The GOS statistics team was not aware of the findings from the DSC review and was also unable to demonstrate to us an understanding of HMRC GTP data, for example, the impact that tax relief might have on GTP. HMRC informed us that the data it sends to ONS is mainly consistent with its [Corporation Tax statistics commentary](#), the only differences being that it removes financial companies and public sector corporations (approximated based on ONS data) and it supplies figures aggregated by company account periods ending on a calendar year basis, rather than on a financial year basis.
- 2.4 The HMRC corporation tax liabilities and data analysis team highlighted to us that recent [methodological changes](#) to company industrial allocations in annual corporation taxation data may result in revising the 2023 data. From 2023 onwards HMRC has switched from using the ONS Inter-Departmental Business Register (IDBR) to Companies House Free Data Product (FDP) as its preferred matching tool and IDBR has now only been used where no match exists within the FDP. During a review of the methodology, HMRC analysis found "the FDP to be a more reliable source as it matches the declaration of SIC [Standard Industrial Classification] by the company to Companies House (which is publicly available) for the reporting year. The IDBR can sometimes indicate the SIC of the parent company for those companies within groups; this is due to the slightly different reporting units used within the IDBR".
- 2.5 HMRC told us that it is willing to run a workshop for ONS to explain how the data it estimates on GTP is compiled before it is delivered to ONS. More widely, HMRC is

also willing to work with ONS on other data quality issues for example, providing a more accurate list of public corporations for the next update it sends to ONS. During this review, ONS contacted HMRC to discuss how HMRC adjusts GTP and to discuss the treatment of public corporations.

- 2.6 Additionally, users we spoke to were not sure what sources were used in the production of the statistics, nor the adjustments that were carried out. This has led to some users questioning the quality of the statistics. To reassure users and provide a robust explanation of the quality of the statistics, ONS needs to better understand the data sources, particularly those supplied by HMRC, which accounts for most of the GOS estimate.

Quality assurance

Quality assurance processes are well-established but would benefit from more-comprehensive assurance of its data sources

- 2.7 The GOS statistics team does not have regular or direct contact with its other non-ONS data suppliers and does not carry out any quality assurance of administrative data that feed into GOS estimates, largely due to resourcing constraints. For example, when producing estimates of Profitability for continental and non-continental shelf companies, ONS downloads data directly from website sources [DESNZ](#) and [National Grid](#). Without having regular or direct contact with these data suppliers, the GOS statistics team has little information on how these data sources are compiled, what if any adjustments are made and what quality assurance takes place before the data are used to produce the statistics. For example, as a supplier of data for GOS estimates HMRC told us that a lot of quality assurance is carried out on its corporation profits data before they are supplied to ONS. With a lack of information about the quality of data sources, it is difficult for the GOS statistics team to make a judgment on the quality of data sources. If the team had a more comprehensive understanding of the data sources and methods used to produce the estimates, it would help it better communicate the quality of the statistics to users.
- 2.8 Suppliers of data, such as HMRC and the Bank of England, suggested ONS could be more transparent about its uses of their data. This would give data suppliers a better understanding of what ONS needs for the data and ensure the data they supply is fit for purpose. The Bank told us that it has an ongoing project analysing Profitability data from private databases which use information from Companies House; ORBIS, FAME and Capital IQ. It has the resources to build a database that includes these data and would be willing to collaborate with ONS to support it in developing more timely Profitability estimates.
- 2.9 ONS's quality reviews provide an assessment of the quality of its statistical outputs against eight quality dimensions: sources; methods; data; systems; processes; quality; users and reputation; and people. ONS carried out a quality review of Profitability and GOS statistics in 2022. The quality review highlighted whilst there is good communication with data suppliers operating within the same division as the statistics production team, it needs to "work on getting open communication channels to ensure that it is aware of any issues with the quality of source data". Several data suppliers we spoke to were not fully aware of the source of the data or that their outputs were used by the GOS team. Information about how the quality of the data inputs is assured and what additional processing or adjustments have

been made to the data inputs should be shared transparently and coherently with all users, but several of the data suppliers were unsure how to find this information. For example, estimates on implicit fees (which are an adjustment applied to the HMRC data) are used by the GOS statistics team. These estimates are sourced from ONS financial corporations' non-monetary financial institutions team (via CORD) who did not know that the estimates were used to adjust GOS estimates. Additionally, the GOS statistics team did not know how implicit fees estimates were compiled or where they were originally sourced within the ONS. The estimates come from the financial sector accounts team, which compiles them from the ONS financial services survey. All three branches are part of ONS's financial sector accounts and corporations' division, yet they shared little information on who used the data and how they are compiled. We noted this scenario for several adjustments.

- 2.10 ONS highlighted that the main risks to the quality of Profitability and GOS outputs are missing data or calculation errors, which both arise during manually completed tasks or a calculation in CORD not working properly. The GOS statistics team mitigates these risks through quality assurance procedures and spot checks to ensure inputs are fully populated and free of errors. Missing data and unexpected changes can also be caused by other teams' data or by the calculations producing errors. The GOS statistics team identifies what transaction or CORD function caused the issue and then flags this to the relevant teams so that they can investigate and correct mistakes in their input data if needed. In the case of CORD calculations not working properly, the team works with the technology support teams to resolve the issue. When problems occur, learning is shared across the statistical division via a log, which is updated monthly following discussions with ONS heads of statistical divisions.
- 2.11 The implementation of Reproducible Analytical Pipelines (RAP) principles could reduce the risk of human error, improve the quality of the analysis, create a more efficient statistical production process, and improve business continuity and knowledge management within ONS. Despite evidence of some RAP principles being used in the production of these statistics, we found that there are still a lot of manual quality assurance processes embedded in the current production systems. Production of the Profitability statistics, for example, involves a manually updated Excel spreadsheet to "tick off" each completed stage, with comments entered where errors or queries occur. Manual identity checks are also carried out in Excel, as part of the National Accounts compilation process, to ensure that the changes carried out have not resulted in any unexpected trend changes. Spot checks are performed at key stages of production before the data are allowed to proceed further. For example, checks for the quarterly GOS statistics are carried out on files imported into CORD and the output file that creates GOS. Other checks include making sure that non-seasonally adjusted figures equal seasonally adjusted ones at an annual level; quarterly data sum to annual; and that there are no missing data or unexpected negative figures. The GOS statistics team also checks if changes introduced during each Blue Book update result in the expected outputs for each change in scope and that the changes are within agreed tolerance limits.
- 2.12 As common in ONS National Accounts production there are no formal service level agreements between divisions; there is a mutual agreement between business areas to deliver data that is beneficial to all teams. Quality and methodology information, including metadata, are available alongside the data on CORD, but for statistics teams to get a full and up-to-date understanding of data quality the

process relies on good engagement between business areas to supplement their knowledge and understanding of the data. Issues with the data supplied from other business areas are queried with the team supplying the data. Quality information is often explained by business areas informally by word of mouth or email.

Additionally, ONS has “daily GDP scrums” which bring all the production areas together to raise any quality issues with data that are used when estimating GDP. Some business areas within ONS, such as Supply and Use balancing, provide briefings that explain the adjustments made to the data. However, in other cases, there is little communication between the business area and the statistics team responsible for producing the data. Communication between the production team and the data suppliers should be enhanced to avoid the risk of quality information not being passed on. For example, revisions can be identified from snapshots of data taken from CORD or statistics teams’ spreadsheets (held for audit trail purposes). However, processes are such that it is left up to the user of the data to be aware that the data have been revised rather than the supplier making users aware.

- 2.13 Communication about the quality of the statistics, for example, methods changes that impact previous years and result in revisions, are conveyed by “curiosity sessions” – where statistics teams present their latest estimates along with contextual and quality information. The contextual and quality information provided at these sessions is later added into CORD. Attendees to curiosity sessions are usually key users or suppliers of data, who can query the results via question-and-answer sessions. For example, GDP curiosity sessions cover GOS data and are well attended. However, we found from our discussions with key GOS data suppliers that other curiosity sessions were not always well attended, largely because ONS statistics teams were not aware of who their key users were, so did not invite them. For example, the non-financial assets production team that supplies data used to compile GOS, holds curiosity meetings about the data, which the GOS statistics team is not invited to. Instead, the GOS statistics team takes the data from CORD, without a good understanding of the sources or methods used to produce the estimates. Attending curiosity sessions is not always necessary as quality information should be stored alongside the data in CORD, but it depends on teams knowing where the information is held and how recently the information has been updated.
- 2.14 As GOS is an important income component, when compiling GDP, the GOS statistics team has a close working relationship with the central GDP compilation team which it consults before the publication of the quarterly GOS estimates. Both teams discuss the GOS estimates relative to the compensation of employees estimates to produce GDP income estimates and how they compare with GDP expenditure and GDP output estimates. Discussions are held throughout the process to ensure the quality of the data, particularly on advising the split between manufacturing and services and how GOS should be allocated across sectors.

Requirement 1: To improve the quality of the statistics, ONS should ensure that it has a good understanding of the quality of the data used to produce the statistics and focus on establishing good relationships with data suppliers. ONS should use our [Quality Assurance of Administrative Data \(QAAD\)](#) guidance to help with its understanding of the data sources and methods used to produce the statistics. To reassure users on the quality of

the statistics, ONS should communicate to users its findings on the quality of the data sources and publish these.

Resources – statistical production processes

ONS statistics production processes should facilitate better interaction between data suppliers

- 2.15 Overall, the statistical production system for Profitability and GOS estimates works well. Different statistical production teams share data, meaning that teams do not duplicate or reproduce statistics that are already available. This also ensures coherence between ONS outputs, and data suppliers can provide additional rounds of quality assurance.
- 2.16 We found that the production process doesn't facilitate sufficient interaction between suppliers and end users of the data. The very nature of a centralised system means that there are often several layers of data suppliers between the statistics producer and the source for the data, resulting in data suppliers having little contact with users of their data. ONS should ensure sufficient interaction with data suppliers to demonstrate a good understanding of the quality assurance process when compiling estimates of GOS.
- 2.17 The statistical production process also means that ONS statistics production teams rely on other ONS data supplier teams to finalise their estimates. For example, the non-financial assets production team (which supplies data used to compile GOS estimates) told us that preliminary estimates it delivers to the GOS statistics team don't include all of the quality adjustments, which account for 1-4% of the size of the final data it delivers.
- 2.18 Some ONS suppliers of data used to compile GOS, such as the non-financial assets production and the central GDP compilation teams, told us that CORD could sometimes produce unexpected results, due to missing data or incorrect parameters being applied. This resulted in ONS statistical production teams having to spend significant time examining the data to find the cause of the issue. These delays often resulted in limiting the time available for carrying out quality assurance checks before statistics were delivered to internal users and before being published.
- 2.19 ONS told us that it has not encountered any issues with the quality of Profitability and GOS statistical outputs as a result of the statistical production system. ONS's 2022 quality review found that the current system was fit for its current purpose but highlighted concerns that the system may lack the flexibility to accommodate any changes, such as incorporating new data sources and processes or changes in the needs of users (for example, Profitability sectoral breakdowns). The GOS statistical team told us it is keen to bring in technical expertise to review its current production processes. However, due to the centralised structure of the production processes, the team has limited influence or control in any development work. ONS told us development resources prioritise two types of development: fixing problems in business-as-usual processes, where statistics teams are expected to carry out minor continuous improvement within the team; and on major development projects. These are prioritised across ONS economic statistics, with the major development projects largely reflecting priorities for the ONS from the Spending Review.

Requirement 2: As part of improving the quality assurance of the statistics, ONS should ensure that production processes facilitate sufficient interaction and information sharing on source data quality. ONS should review its production processes and identify how it can accommodate changes such as incorporating new data sources and processes or changes in users' needs.

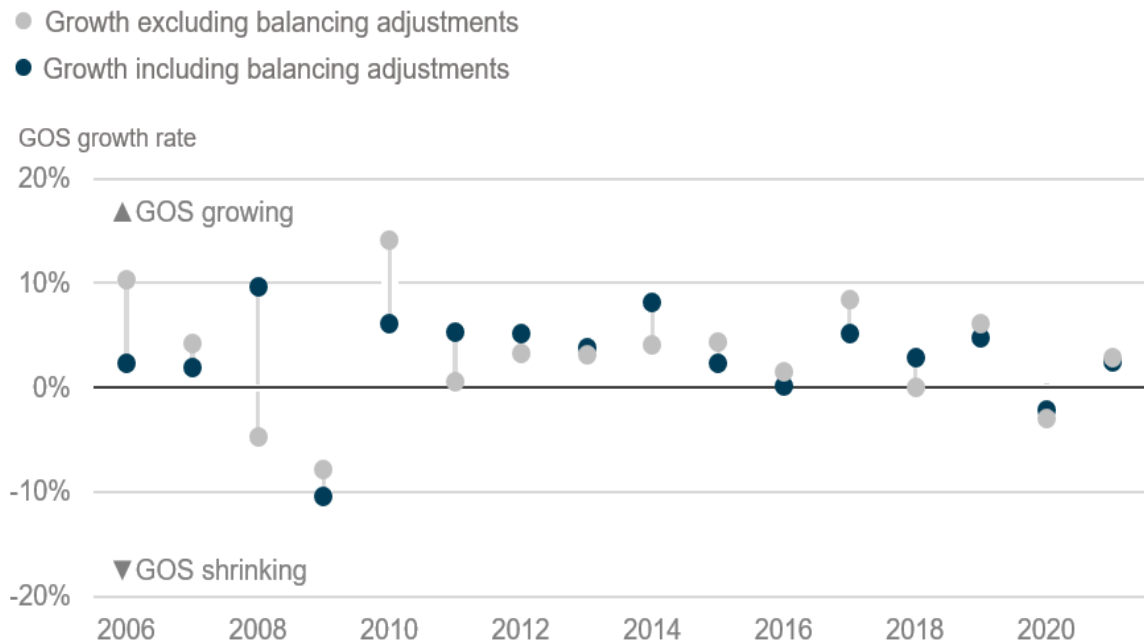
Quality documentation

ONS should explain to users the sources used, methods to adjust and quality assurance it carries out on the estimates

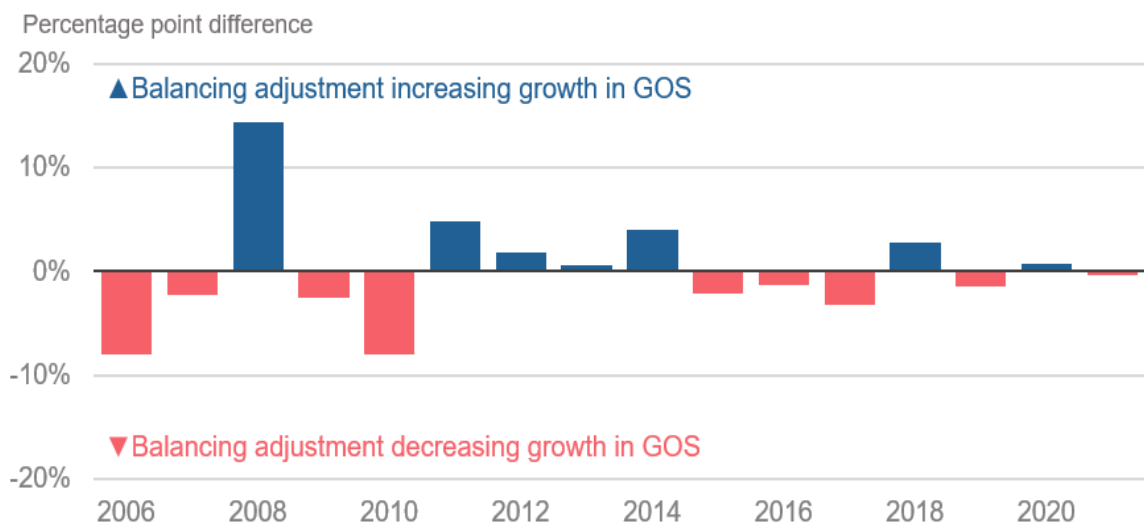
- 2.20 ONS should better communicate information about how the quality of data sources used in Profitability and GOS estimates are quality-assured so that users can be reassured that estimates have been through a rigorous process of checks. Users we spoke to were not aware of the sources used to compile Profitability and GOS estimates, the methodology used, any uncertainties in data, or the wide range of adjustments that were applied in producing the estimates. Users were also unaware that ONS now estimates quarterly GOS using information from the GDP Production measure, and that ONS had stopped using the QOPS survey. ONS told us it was announced at the time, but during our review, there was no notice linked from the bulletin or the [QOPS QMI](#) to tell users that the survey had been discontinued. Users previously had to visit the [ONS business surveys page](#) to find that the survey had been discontinued. Furthermore, there was no explanation to users as to what data source was used instead.
- 2.21 Information on the quality of the Profitability statistics is found in the [Profitability of UK companies QMI](#). During our review, ONS updated the QMI to better reflect the data sources used to compile estimates of company profitability and to reflect that the QOPS survey has been discontinued. ONS also specifically highlighted the increased uncertainty in recent quarters. ONS has agreed to add additional important quality information to the QMI, for example:
- The adjustments that are carried out by both ONS and HMRC
 - An assessment of the quality of the data sources, for example, explanations of any limitations of data sources and the extent to which they can be overcome
 - The methodology used to compile the estimates
 - Uncertainty and information about biases
- 2.22 Adding additional information on data sources to the QMI is a positive step. However, ONS should communicate quality issues and adjustments to users more transparently. For example, ONS provides more-detailed information (than available in the QMI report) about the quantity and quality of sources and adjustments it uses to estimate GOS, in the ESA2010 UK Gross National Income (GNI) Inventory. This information is delivered to the European Commission, as part of the quality assurance process used to determine the UK's contribution to the EU Budget, although the UK has left the EU, the budgetary processes are not yet complete. Further quality information for website data sources is available, for example from DESNZ, but could be linked from (or referenced in) the QMI.

- 2.23 ONS's 2022 quality review suggested that the Profitability output could be improved further by communicating the reasons why it can't be compared to other similar outputs and adopting harmonised standards where they are available.
- 2.24 Many users take the estimates at face value without necessarily considering the quality of the estimates because they are produced by ONS. However, to uphold the principles of the [Code of Practice for Statistics](#) ONS needs to reassure users of the quality of the Profitability and GOS statistics. Users told us it was difficult to know how the GOS data was constructed, specifically, which quasi-corporations were included in GOS estimates, and how quasi-corporations are identified and separated from the self-employed. ONS should be able to respond with a robust understanding and explanation of the quality of the statistics. To produce the statistics to accredited official statistics standards, it is important for ONS to better document information about the sources, methods (used to produce) and the quality assurance (carried out on) Profitability and GOS estimates. ONS should be able to explain the strengths and limitations of the statistics in relation to the different uses outlined in paragraph 1.28.
- 2.25 During our review, ONS published [annual GOS growth rates including and excluding balancing adjustments, 2006 to 2021](#), which is a positive first step in helping users make well-informed decisions when using GOS statistics. The Supply and Use balancing adjustments were important adjustments when compiling GOS estimates. Their aim is to reconcile the GOS estimates with other income, expenditure and production components when estimating GDP. The team told us that in some years balancing adjustments could significantly affect the GOS estimate. We found that for some years, most notably in 2006, 2007 and 2010, the balancing adjustments applied to annual GOS estimates after the annual Supply and Use exercise resulted in downward adjustments which accounted for 7-10% of the annual GOS estimate. From 2011 onwards, balancing adjustments applied to GOS estimates, have been smaller. To provide greater transparency to users, ONS should explain the role of these adjustments and their change in value over time. Figure 2 presents annual GOS growth rates including and excluding balancing adjustments, and shows the size of the adjustments.

Figure 2 – GOS growth rates including and excluding balancing adjustments
Balancing adjustments tend not to alter the direction of growth for PNFC GOS...



... and the magnitude of adjustments has been relatively minor since 2011

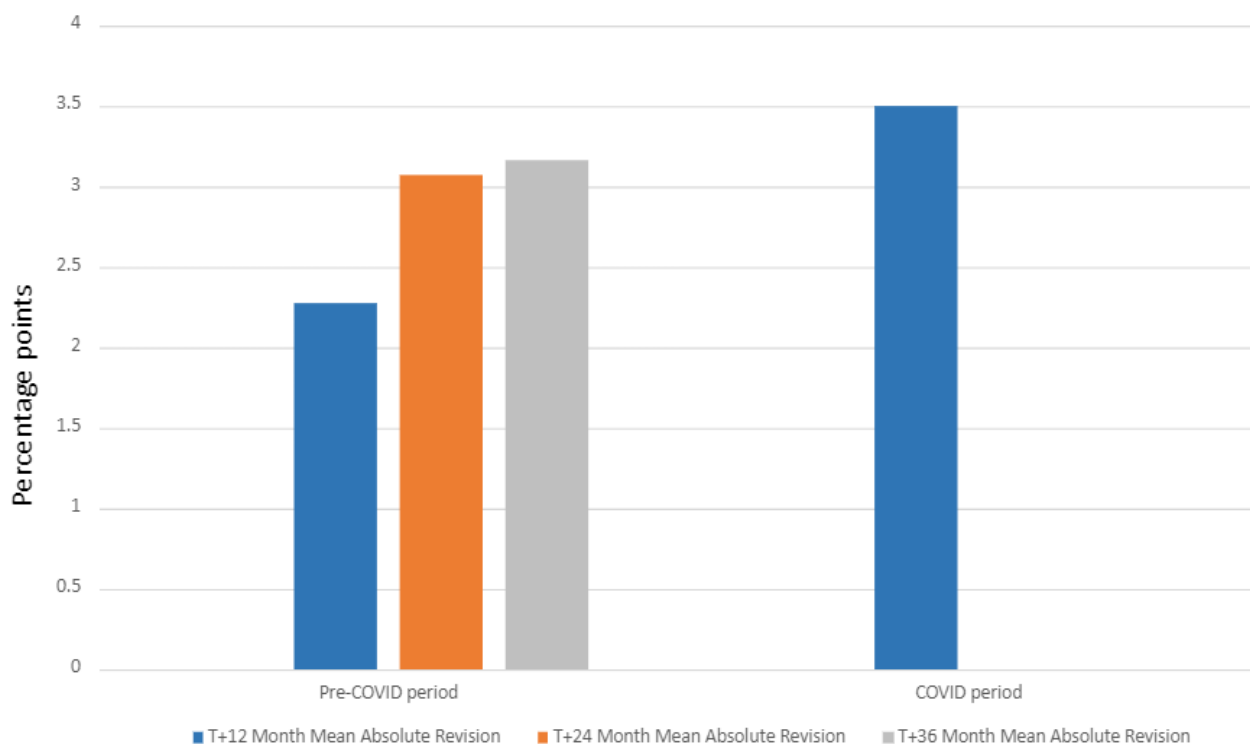


Source: ONS

2.26 Some users highlighted to us concerns around the size of the revisions that ONS is making to the GOS estimates. When analysing Mean Absolute Revisions (MAR) to quarterly GOS growth rates, we found that during both the pre-COVID and COVID period these were 2.3pp and 3.2pp respectively, 12 months after the first estimate. Figure 3 presents MAR for quarterly GOS growth rates. ONS should enhance its revisions analysis when presenting GOS statistics in two ways. Firstly, by taking into account what analysis users need to better understand revisions. Secondly, by

enhancing its communication of the uncertainty in early GOS estimates following the guidance from [OSR's approaches to presenting uncertainty in the statistical system](#) and the findings from the [ESCOE project](#) on communicating uncertainty in economic data. Further information on revisions of quarterly GOS growth rates can be found in Annex C.

Figure 3 – Mean absolute revisions of quarterly GOS growth rates



Source: ONS, GDP income components – revisions triangles – [Private non-financial corporations gross operating surplus](#), 29 September 2023.¹

2.27 Users also told us that ONS could better explain how it is revising the data to account for new government policies, for example, the Energy Price Guarantee (EPG), so that users can better understand the revisions that ONS has made. During our review, ONS has published information on the EPG in its classification review and refers to EPG in quarterly GDP bulletins. GDP bulletins.

Requirement 3: To enable all users to make well-informed decisions on the use of Profitability and GOS statistics, ONS should better document quality information and communicate to users: the methods and data sources used; any limitations and uncertainties in the statistics; and quantification and explanation of revisions.

¹ Pre-COVID period, 2010Q1-2019Q1. COVID period, 2020Q1-2022Q2

Resources – staff understanding of data sources and methods

ONS should ensure sufficient resource and support is made available so that staff have the opportunity to develop a strong understanding of the data sources, methods and systems used in the production of estimates

- 2.28 The [independent review of UK economic statistics report](#) in 2016 highlighted that ONS should be “...*encouraging staff to: understand better how their statistics are used; be more curious and self-critical in identifying statistical issues; collaborate with users and experts; and create a culture of rewarding innovation*”. The GOS statistics team recognised the importance of understanding the data sources and methods used to compile the estimates.
- 2.29 The GOS statistics team comprises three people, two of whom are quite new to the role. The team has worked enthusiastically to build its knowledge, for example, by engaging in curiosity sessions, but in-depth knowledge in the team has been lost as more-experienced staff have moved on. The combination of a relatively new team, coupled with resourcing pressures has meant that there are significant gaps in understanding the quality of source data and the system processes that are carried out to produce the statistics. ONS acknowledged the need to improve knowledge transfer and support business continuity with staff moves.
- 2.30 The GOS statistics team during this review updated the Profitability QMI, to explain the changes to methods, but this took longer than planned. This is mainly due to staff legitimately prioritising the production of the statistics, but partly due to staff not having a strong enough understanding of the quality and methods used to produce the statistics.
- 2.31 Users told us they would like to use more-granular data for Profitability statistics, beyond the services, manufacturing, continental and non-continental shelf breakdowns. The GOS statistics team said it would benefit from a review of its data sources and consider the use of more timely profitability data sources, such as company accounts or web-scraped data. ONS told us that development work is managed centrally as part of a wider National Accounts development plan and any major developments are subject to an audit process that considers user needs and the feasibility of developments within budgetary constraints. Information on development work more widely should be communicated more clearly, explaining how it meets users’ needs.

Requirement 4: To reassure users on the quality of the statistics, ONS should demonstrate to users that staff have a strong understanding of data sources, methods, production processes and how the statistics align with users’ needs. In doing so, ONS should review its knowledge transfer process and support business continuity during staff changes, so ONS is reassured staff can respond confidently to users’ queries.

Meeting users' needs

ONS should engage with all key users to ensure the statistics meet their needs

- 2.32 The independent review of UK economic statistics report highlighted that the “*primary objective of statistical producers is to meet user needs*”. The needs of key users, such as the GDP compilation team, are considered throughout the statistical production process. More widely, the GOS statistical team records queries that it receives from users. Users who contributed to our review told us that the team (and ONS generally) helped respond to their queries and provide links to additional historical data that has been archived.
- 2.33 The GOS statistical team acknowledged that while there have been some attempts to formally engage with key users outside of ONS, more could be done. ONS’s 2022 quality review highlighted that the output met the basic needs of most users, but the review focused solely on ONS users. Outside ‘National Accounts’ wide external engagement with users, ONS has no recent feedback from users outside of ONS that could be used to guide any improvements to the statistics. The last reference of ONS formally reviewing the statistics against non-ONS user needs was in [2012](#). Since then, users have not been consulted on changes, for example, the decision by ONS in November 2023 to reduce the frequency of the Profitability release from quarterly to annual. The reason for the change to an annual release is to allow ONS to further develop the analysis of Profitability data.
- 2.34 It is essential that ONS develops a better understanding of user needs. The GOS statistics team was unaware, for example, of the vital importance of the quarterly GOS and Profitability statistics, to key users such as the Bank of England and OBR in feeding into monetary and fiscal policy decisions. At the time of this report, OBR told us that the timeliness of quarterly Profitability statistics was meeting its needs. However during this review, ONS announced [changes to ONS’s publications and activities](#) and whilst it plans to continue to publish quarterly GOS estimates and annual estimates of Profitability, ONS has discontinued the quarterly Profitability publication. When prioritising the publication and frequency of these statistics, ONS should ensure that it speaks with users of the statistics and ensure that any decisions reflect the majority of users’ needs.
- 2.35 The Bank of England, OBR and academics told us they needed better-quality estimates of the Profitability of UK companies and GOS, to enable them to improve analysis on the labour share and Profitability. Users also asked for more-granular industry breakdowns of these statistics, similar to those published in the [Supply and Use tables](#) and the [Capital stocks and fixed capital consumption](#) publication, produced by the ONS. Similarly, ONS supplies quarterly and annual estimates of GOS and mixed-income for the whole economy to the [OECD](#) providing more granular industry breakdowns, that users would benefit from. In the absence of more-granular industry breakdowns of companies’ profits, some users purchase Profitability data from private databases that use information from Companies House: [ORBIS](#), [FAME](#) and [Capital IQ](#).
- 2.36 There is an awareness from ONS that some users have demands for additional products that cannot be currently offered. ONS needs to be more transparent with users in explaining where it can or cannot meet user needs for more-granular industry breakdowns or more timely data sources to improve the quality of the statistics. For example, ONS’s 2022 quality review identified that the GOS statistics team would like to have more confidence in its industry splits for GOS. The lowest

level of disaggregation for the Profitability of UK companies' data is manufacturing and services. HMRC can supply data at the industry level, but ONS found that the quality of information was less robust as HMRC relies on businesses identifying their industrial classification code. ONS therefore instead uses the Annual Business Survey to identify the proportional split between manufacturing and services.

Requirement 5: ONS should engage with users of these statistics and seek regular feedback to better understand their requirements and the extent to which the current statistics meet their needs. ONS should use the findings from this ongoing engagement to develop these statistics so that they meet as many key users' needs as possible. Where users' needs cannot be met ONS should be transparent about the reasons for the decisions made and any constraints.

Annex A: Profitability and Gross Operating Surplus data sources

Annex A1: Data sources used for the quality assurance and triangulation of Quarterly Profitability and GOS data

ONS data sources used to quality assure Profitability and GOS estimates	Definition	Source
ONS Economic Output data (GDP output)	Movements in the volume of output for the UK services industries (seasonally adjusted)	Index of Services
ONS Economic Output data (GDP output)	Movements in the volume of production for UK production industries: manufacturing, mining and quarrying, energy supply, and water and waste management	Index of Production
Non-ONS data sources used to quality assure Profitability and GOS estimates	Definition	Source
The Bank of England	Summary report compiled by the Bank of England from 12 regional agents as a result of discussions with 700+ businesses across the UK	Agents' summary of business conditions
The British Chambers of Commerce	A survey of over 5,000 firms – (92% of whom are Small-Medium Enterprises) on business performance across different sectors	Quarterly Economic Survey
Ernst & Young	Annual profit warning from UK-listed companies	Profit warnings
Trading Economics	Provides the latest reported value for the United Kingdom Manufacturing Purchase Managers Index	Purchases Managers Index (PMI)

Annex A2: Primary data sources used to compile Annual Gross Operating Surplus of Private Non-financial corporations

Profitability and GOS data sources	Definition
HMRC Corporation trading profits data	Breakdown of Corporation Tax receipts and liabilities by number of companies, income, deductions, industry sector, company size and financial year
HMRC Schedule A taxation records (dataset supplied by HMRC that is not published)	Taxes on trading income from UK land
HMRC Self-assessment tax data (data are an extract of self-assessment data that are not publicly available).	Tax that is deducted automatically deducted from wages and pensions
Department for Energy Security and Net Zero (DESNZ) Gas energy trends Oil and Oil Products energy trends	Gas and Oil prices data
National Grid Gas data	Natural Gas Prices
HMRC Self-assessment tax data for partnerships – all industries except 64-68 (financial corporations). Specific industry data are sourced from: <ul style="list-style-type: none">• DEFRA – farming (substituted with profits data copied from CORD DEFRA sources system)• ONS Central Government Team – pensions data for GPs and dentists (via CORD series ID CFYH)	Quasi corporations (unincorporated partnerships) profits data

Annex A3: Data used to make adjustments to the administrative source data

Adjustments	Definition	Source
Gross Fixed Capital Formation	Machinery, cultivated assets, entertainment and artistic originals, mineral exploration, computer software, own-account construction and R&D	ONS GFCF dataset
Rent payable/receivable	Average farm rents paid in England under full agricultural tenancies, farm business tenancies and seasonal agreements (those of less than 12 months) and the area of land covered by these agreements.	DEFRA and devolved administration governments
Interest payable on Bonds and Loans	Interest that companies pay on bonds and loans	ONS financial services surveys for bond liability levels and non-bond payments. The Bank of England surveys for non-bond payments
FISIM (Financial intermediaries services indirectly measured)	Difference between what the bank charges to borrowers and the payments it makes to lenders	ONS financial services surveys and Bank of England administrative data
Insurance premiums	Insurance pay-outs on insurable losses and claims.	The Bank of England - Prudential Regulatory Authority administrative data
Holding gains and losses	Calculated as the change in value of inventories caused by price movements. Includes work in progress, computer software and agricultural assets	ONS Annual Business Survey
Patent Royalty data	Payments for foreign patents	ONS Balance of Payment Accounts
Takeover costs	Publicity, advertising and consultancy fees	ONS Mergers and Acquisitions survey
Work in progress services	Stoppages of work-in-progress in the UK during a year caused by labour disputes	ONS Annual Business Survey
New stock issuances and transaction costs of financial assets	Issues of shares through Initial Public Offerings (IPO) or Seasoned Equity Offerings (SEO)	Value of IPOs

International Branch Profits	Foreign branches of UK companies' profits	ONS FDI survey
Entertainment expenses	Business entertainment of clients (for example, eating, drinking or other hospitality) to discuss a particular business project or forming or maintaining a business connection	HMRC microdata (model) that uses a carry forward proportion applied to the data
Implicit Fees	Perceived or estimated loss in revenue. All adjustments taken out of intermediate consumption (P2) – for company accounts	ONS Financial Survey
Tax Evasion & VAT fraud	Illegal mis- or non-reported income	HMRC tax gap analysis
Balancing Adjustments	Adjustments to align with expenditure and output measures of GDP	ONS Supply and Use Tables

Annex B: International comparisons

The information in the table is sourced from the International Monetary Fund’s [Special Data Dissemination Standards \(SDDS\)](#) guidance. The website provides information about economic and financial data disseminated by member countries that subscribe to the SDDS. We noted that some of the information included was however outdated. As a result, we have supplemented SDDS information with our own research sourced from NSI websites and conversations with statisticians.

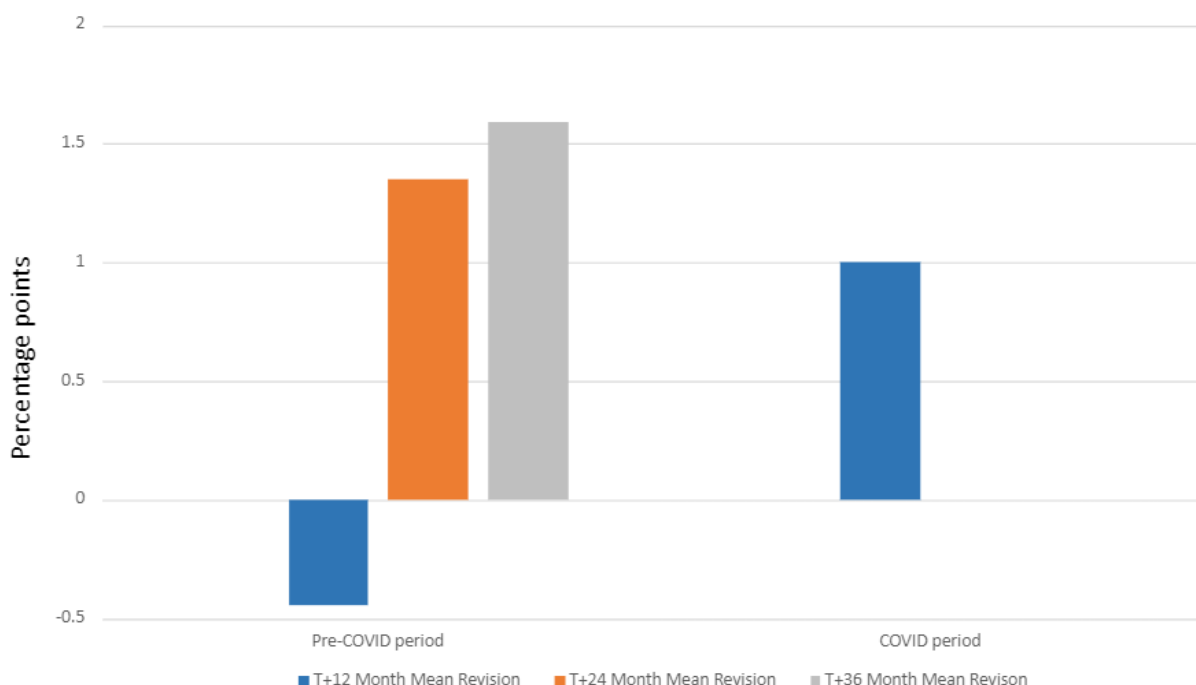
International Comparison of Profitability and Gross Operating Surplus (GOS) Estimation within National Accounts	
<p>Statistics Canada</p>	<p>Annual GOS Estimates: Statistics Canada sends annual GOS estimates broken down by industry to the OECD.</p> <p>Quarterly GOS Estimates: GDP, income-based, quarterly – GOS is published unadjusted and seasonally adjusted annual rates of GDP income. The key source for the statistics is the Quarterly Survey of Financial Statements.</p> <p>Corporation profits before taxes, on an original-costs-basis, excluding government business enterprises, quarterly – unadjusted and seasonally adjusted estimates of non-financial corporations’ profits.</p>
<p>Institut national de la statistique et des études économiques (Insee)</p> <p>France</p>	<p>Annual Profitability Estimates: France produces Ratios of the industry sectors by business sector – an annual publication that includes a Profitability measure. It is defined differently to the UK. France defines the profit margin as the ratio between GOS to GVA.</p> <p>Annual GOS Estimates: Gross operating surplus by industry at current prices</p>
<p>Destatis (Statistisches Bundesamt)</p> <p>Germany</p>	<p>Annual GOS Estimates: Sector Accounts – Annual results 1991 onwards. Include estimates of operating surplus for the non-financial corporations.</p> <p>Quarterly GOS Estimates: Sector Accounts – Quarterly results 1999 onwards. Includes estimates of operating surplus for non-financial corporations.</p> <p>Other publications: Deutsche Bundesbank has produced research papers on the Profitability of German enterprises, using enterprise financial data.</p>
<p>Statistics Bureau of Japan</p>	<p>Annual GOS Estimates: Statistics Bureau Japan sends annual GOS estimates industry breakdowns to the OECD.</p>

<p>Istituto Nazionale di Statistica (Istat)</p> <p>Italy</p>	<p>Annual GOS Estimates: Istat sends annual GOS estimates broken down by industry to the OECD. Raw annual GOS estimates: Sequence of accounts (istat.it).</p> <p>Quarterly GOS Estimates: GG quarterly non-financial accounts-Q3 2022 (istat.it) - Note: Chart 4. Raw quarterly GOS estimates: Seasonal adjusted aggregates (istat.it)</p>
<p>The Bureau of Economic Analysis (BEA)</p> <p>The United States of America</p>	<p>Annual Profitability Estimates: “Returns for Domestic Nonfinancial Business” It calculates sector returns as the ratio of net operating surplus to the net stock of produced assets. It sets out the net operating surplus and stock of produced assets for each industry before outlining rates of returns. Whilst it is a similar measure to Profitability produced by ONS, the key difference is that the US does not produce a gross rate of return measure but a net measure. The US measure goes into greater granularity by estimating the rate of return per industry and the US measure calculates a before and after-tax rate of return.</p> <p>Annual GOS Estimates: BEA sends annual GOS estimates industry breakdowns to the OECD. Using the Profitability data supplied on returns for domestic non-financial business, GOS can be calculated by adding net operating surplus and the consumption of fixed capital.</p>
<p>Centraal Bureau voor de Statistiek</p> <p>Netherlands</p>	<p>Annual GOS Estimates: Statistics Netherlands sends annual GOS estimates industry breakdowns to the OECD.</p> <p>Other publications: Statistics Netherlands has produced articles regarding PNFC profits and GOS. Statistics Netherlands uses a profit measure expressed as “profit margin”. The profit margin is defined as the ratio of GOS to GVA.</p>
<p>Central Statistics Office</p> <p>Ireland</p>	<p>Annual GOS Estimates: Annual Gross Operating Surplus of PNFCs is calculated using administrative corporation tax records supplied to us by the Irish Revenue Commissioner. The “large cases unit” administrative data is used along with Balance of Payments company survey data to ensure coherence of results for important cases in the Irish economy.</p> <p>Quarterly GOS Estimates: CSO published experimental quarterly estimates of corporate profits, calculated using an indirect approach. Quarterly Balance of Payments survey data and administrative Value Added Tax records were used to interpolate the annual corporate tax data in the closed years and to extrapolate forward into the latest “open” quarters. The background notes chapter from the publication provides additional detail on the data sources and methods used to derive these quarterly estimates. Ireland CSO are further developing these methods to produce more granular quarterly estimates continually.</p>

Annex C: Revisions analysis

- C1. This revisions analysis used quarterly growth rates of GOSs statistics. Mean Revisions (MR) and Mean Absolute Revisions (MAR) were used to assess the reliability of GOS figures, providing insights into the direction and magnitude of revisions compared with the initial estimate. Revisions focused on the pre-COVID and COVID pandemic periods, comparing the first quarterly estimates with the same period at 12, 24 and 36 months (T+12, T+24 and T+36 respectively), using quarterly first estimates produced at the second month of every quarter (M2) as the baseline.
- C2. The pre-COVID period covers 2010 (Q1) to 2019 (Q4). The COVID period covers 2020 (Q1) to 2022 (Q2). Data was sourced from [GDP income components – revision triangles - Office for National Statistics](#).
- C3. MR of quarterly GOS growth rates during the pre-COVID period, were -0.4pp one year after the first estimate (T+12 months) and were revised upwards by 1.4pp and 1.6pp, respectively at T+24 months and T+36 months. During the COVID period, MR were revised upward by 1.0pp at T+12 months.
- C4. MAR measures the average revision in absolute terms, avoiding the offsetting effect from the negative and positive values. MAR revealed the quarterly GOS growth rate during the COVID period was revised by 3.5pp in T+12 months compared with the pre-COVID period which were 2.3pp, 3.1pp and 3.2pp at T+12 months, T+24 months and T+36 months respectively.

Figure C.1 – Mean revisions for quarterly growth of GOS



Source: ONS, GDP income components – revisions triangles – [Private non-financial corporations gross operating surplus](#), 29, September 2023.²

² Pre-COVID period, 2010Q1-2019Q1. COVID period, 2020Q1-2022Q2.