Article

Productivity development plan: 2021 to 2023

This development plan builds on recent improvements to the Office for National Statistics (ONS) productivity statistics and looks at introducing new outputs, further improving our productivity statistics and consolidating our improvements to date.

Contact:
Josh Martin
productivity@ons.gov.uk
+44 1633 455425

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1 . Overview of productivity development plan

This plan outlines priorities for developments of the Office for National Statistics' (ONS) productivity statistics and analysis between 2021 and 2023. It is an update of the previous productivity development plan published in 2018. We have achieved many of the previous plan's intentions, although the pandemic disrupted progress.

The new plan's priorities have been informed by users' feedback, as well as international best practice, economic conditions, and broader priorities of the ONS. We ran a survey of users in April 2021 and a user event in May 2021; for summaries, see StatsUserNet.

An assessment of UK productivity statistics by the Office for Statistics Regulation (OSR) set out some requirements for these statistics to better meet user needs. Our Action Plan included a commitment to publish this plan. Our priorities are also influenced by the OSR's assessment.

This plan is accompanied by more detailed documentation on StatsUserNet, including further lower priority plans not featured here, and alternate presentations of the information in this article.

We welcome user feedback – please email productivity@ons.gov.uk or use StatsUserNet.

2 . Progress since previous development plan

We now produce a large suite of productivity statistics on a frequent and timely basis. These include quarterly multi-factor productivity (MFP) estimates, including quarterly capital services and quality-adjusted labour input estimates. These are published one week after the quarterly national accounts, which is world-leading for timeliness of these statistics.

We routinely publish a breakdown by industry division (two-digit level in Standard Industrial Classification (SIC) 2007) for labour productivity, and by industry section (letter-level in SIC2007) in Flash estimates. In later quarterly estimates we also include a contributions analysis for three levels of industry aggregation (with the most detailed of these included in the industry division dataset). Building on the recent positive assessment by the Office for Statistics Regulation, and following previous compliance checks, we expect to drop the "experimental statistics" status from many of these new statistics soon.

We have expanded our regional statistics in recent years to include estimates at a range of geographical breakdowns, including by local authority district, as well as new quarterly regional productivity estimates. We have continued to publish analysis of the drivers of differences in productivity between different areas of the UK.

Our public service productivity statistics now include quality adjustments covering around half of government expenditure. The pandemic has thrown attention on the volume measures of public sector output, which we have also developed over recent years.

3 . Priorities across all productivity statistics

Providing more information and analysis

Users told us that they sometimes find it difficult to use our data, in part because the names of our datasets are not always clear. We will consolidate and improve our datasets, improving the available information about the contents of each and navigation between them. We will also improve the formatting of the datasets to meet accessibility requirements, and improve usability. We anticipate implementing these improvements in early 2022.

We will provide further insight alongside the regular datasets. Recent examples include analysis on homeworking and productivity, management and innovation, and the regional dispersion of productivity and income. We intend to begin a series of "industry spotlight articles", taking a closer look at the productivity story of various industries. The first will be on the construction industry. We hope to follow this with the retail industry.

We will also ensure all our methodology and quality information about productivity statistics is accurate and up to date.

Continuing engagement and collaboration

We will continue to engage pro-actively with stakeholders, users and the research community. We will build on our strong relationships with The Productivity Institute and Economic Statistics Centre of Excellence (ESCoE). A priority will be to ensure that the data and statistics we produce continue to be useful to analysts and researchers. As well as publishing statistics, we will continue to pursue joint analytical work with academia and external researchers to provide additional insight using our data; see our Action Plan.

4 . Labour productivity

This section contains plans for labour productivity estimates at the national level, including industry breakdowns. Regional statistics are discussed in section 5.

International comparisons of productivity

Our top priority for labour productivity statistics is to re-commence publication of international comparisons of productivity (ICP). This release has been suspended since 2018 because of concerns about the comparability of hours worked data. As highlighted in our progress update in February 2021, we intend to recommence publication of ICP estimates by the end of 2021. This will present the data in a way that reflects the inherent uncertainty in the data but will not yet incorporate improvements to the way we measure hours worked for UK productivity statistics.

A high priority will be to continue the work to explore and improve the international comparability of our hours-worked estimates. Our February 2021 progress update illustrates the start of this work, and we will advance this work further. In the long term, we hope to collaborate with other national statistical institutes and the OECD to produce an international framework for measuring hours worked and productivity consistently across countries.

Unit labour costs

By the end of 2021 we will launch a new suite of Unit Labour Costs statistics. These will incorporate new measures of Average Labour Compensation per Hour (ALCH), which will replace the Index of Labour Costs per Hour (ILCH). This will allow us to tell a more comprehensive story around productivity and labour costs, using a fully consistent set of statistics. This suite will also include industry breakdowns (updating previously published sectional unit labour costs), and the first official estimates of the labour share of income. We intend to explore the feasibility of producing regional unit labour costs statistics over the coming years.

Labour market transformation

The Office for National Statistics (ONS) is continuing to investigate how Pay-As-You-Earn (PAYE) Real Time Information (RSI) data from HMRC can be used alongside survey data to improve the timeliness and coverage of our labour market statistics. The ONS is also trialling an online-first Labour Market Survey, which may in time replace the Labour Force Survey (LFS).

Labour metrics used in productivity statistics partly rely on the LFS. Any changes to the LFS would have an important effect on productivity statistics. A high future priority will be to harness the opportunities from administrative data and new surveys for productivity statistics, and communicate their effects. We would also need to update our production systems in line with changes in other parts of the ONS , to accommodate these new data. Any changes should improve our estimates of labour inputs and productivity, but would involve revisions, which we would communicate promptly.

Improving industry detail

We have received many requests for more detailed industry breakdowns of productivity statistics, especially in the services sector. The most detailed industry breakdown we currently produce in our official productivity statistics is by industry-division (two-digit) from the Standard Industrial Classification (SIC) 2007. In 2022 we will explore the feasibility of producing estimates at the group-level (3-digit) for some of the economy. These would likely use different data-sources to our current industry statistics, so may not be fully consistent and would be of lower quality. These would likely be only annual estimates of output per job in the first instance.

We will also explore providing trend estimates of productivity, especially for more detailed industries. As productivity is a structural feature of the economy, short-run volatility can be misleading. Trend estimates may be more useful for some users.

5 . Regional productivity

Development to our suite of regional productivity statistics is amongst the highest priority areas on this development plan, given the strong interest among policymakers and analysts.

Increasing geographic detail

While we already provide a large range of geographic breakdowns of productivity estimates, we intend to develop even more local estimates. These will be facilitated by the development of Gross Value Added (GVA) estimates for very local areas such as Lower-level Super Output Areas. We will look to develop corresponding labour data to construct productivity measures. This level of detail would allow the development of statistics by Travel to Work Area – which aligns well with economic activity.

Developing regional MFP estimates

All our current regional productivity statistics are labour productivity statistics. Where there are differences in capital inputs due to industry structure, capital investment activities of business, or other reasons, labour productivity estimates can give misleading results. Regional multi-factor productivity (MFP) estimates (which account for capital inputs as well as labour inputs) would thus be conceptually superior, and would offer new insights into regional productivity and potential output.

To develop regional MFP estimates, we will prioritise development of regional capital investment data (gross fixed capital formation, GFCF). While the ONS currently produces regional GFCF estimates, they have not been published domestically as official statistics since 2003 because of quality concerns. We are exploring a range of existing data sources and considering new sources and methods to improve the estimates. We will then conduct research to develop regional capital stocks and capital services statistics.

We will also explore the development of regional quality-adjusted labour input (QALI) estimates, to reflect the differences in skills and experience in different regions of the UK. Combining the regional capital services and regional QALI estimates, we will develop regional MFP estimates. Given the data challenges involved, this will take several years.

Increasing industry detail

To facilitate a richer analysis of regional productivity and reflecting the variations in industry structure in different regions of the UK, we will seek to expand the industry detail available in some of our regional productivity statistics. At present, we only produce industry breakdowns of productivity for International Territorial Level (ITL) 1 regions on an annual basis.

We will explore the development of industry estimates for ITL2 and ITL3 regions for the first time. We also plan to develop expanded industry breakdown below the section-level (letter-level) for ITL1 regions on an annual basis. Industry-by-region estimates at a quarterly frequency are lower-priority objectives based on user feedback.

Microdata analysis of regional productivity

Our previous research showed that even within industries there are large differences in productivity levels between different parts of the country, particularly in services. It is important to understand factors that can influence the productivity of a firm, including those related to a firm's location. Regional productivity microdata analysis will be closely aligned with firm-level microdata work outlined in Section 8. We will explore some important internal factors influencing firm-level productivities, such as the ownership of a firm and its management practices. We will also consider external location-related factors such as local labour markets, demand, and infrastructure, which may have significant impacts on the firm's productivity.

6 . Growth accounting

Increasing industry detail

We already produce a considerable amount of industry detail in capital services estimates. However, because of limitations in the industry breakdown of our quality-adjusted labour input (QALI) measures, our multi-factor productivity (MFP) estimates are mostly available only by industry section (letter-level). We have begun work to expand industry detail, publishing experimental breakdowns in manufacturing, retail and wholesale, and professional services.

We will continue to explore improvements to our QALI statistics that would allow more detailed industry estimates in our annual and quarterly MFP estimates. The quarterly data are likely to remain at a more aggregated level than the annual data to avoid volatility.

Improving capital services

Our current capital services estimates include breakdowns by asset and by industry, but not the cross-classification of asset-by-industry. This level of detail can be volatile and is of lower quality than the higher-level breakdowns. However, users told us it can be useful for analysts to understand the drivers of capital services at industry level. We intend to publish the data underlying the capital services estimates, by industry and asset, on an annual basis. We will also continue work to improve consistency between National Accounts capital stocks data and capital services.

Communicating MFP

While conceptually superior to measures like labour productivity, MFP is harder to explain and understand. Users told us this was a barrier to using them. We plan to do more to communicate MFP statistics in a way that is easy to understand. We will make use of infographics and/or visual presentations to explain the concept, as well as providing a worked example. Along with updating our methodology information, we hope this will provide ways for users to understand MFP. We continue to recommend our Simple guide to MFP, and the Productivity chapter of the ONS' Measuring the Economy online textbook.

Expanding the MFP framework

We continue to hold a long-term aim to expand the MFP framework to encompass more types of capital, including natural capital, infrastructure and additional intangible assets. Development work on measuring intangible assets and infrastructure was slower than anticipated since 2019 because of resource constraints. It is now the responsibility of the Non-Financial Assets Development team, with recent developments including updated estimates of investment in intangible assets. Once the necessary data become available, we will look to incorporate these "missing capitals" into our growth accounting framework.

Following publication of Blue Book 2021 later in 2021, which introduces a double-deflation methodology, the ONS will make available estimates of output and intermediate consumption in volume terms. Previously, under a single-deflation methodology, only gross value added (GVA) estimates were deflated. The availability of intermediate consumption in volume terms allows growth accounting in a so-called KLEMS-framework (see OECD Measuring Productivity Manual), where changes in total output are decomposed into changes in inputs of capital (K), labour (L), energy (E), materials (M), and services (S), with the residual being the change in productivity. Transforming our current GVA-based MFP statistics into a KLEMS-framework would require a time-consuming re-work of our production systems but we intend to begin this work in the coming years.

7 . Public service productivity

Responding to the pandemic

The coronavirus (COVID-19) pandemic caused disruption to the delivery of public services. Estimates of public sector output in the National Accounts have been adjusted to account for remote teaching, the test and trace programme, and mass coronavirus vaccinations. Public service productivity (PSP) estimates benefit from all these improvements.

Annual estimates of PSP are adjusted for changes in the quality of services delivered. Examples include exam attainment for education services, survival rates for healthcare services, and reoffending rates for public order and safety services. Given the time required to monitor these indicators of quality, annual PSP statistics are published with a considerable lag. The annual PSP statistics for 2020 will be published in early 2023, while adult social care productivity statistics for financial year ending 2021 will be published early 2022.

A top priority is to ensure the quality adjustments are robust to the effects of the pandemic and reflect appropriate changes in the quality of the services provided, rather than changes in the circumstances under which they are provided. We will engage with the academic community to ensure we benefit from the latest research. We will ensure that the adjustments we make for the pandemic do not disrupt the longer-term trends.

Improving output measures

Considerable progress on measuring public sector output was made in the mid-2000s, following the Atkinson Review (2005). Given changes over time in government policies, service provision, and the availability of data, we regularly review our measurement approaches.

We will continue to work with colleagues in National Accounts teams to explore improvements to the measures of direct output of some service areas. Emerging opportunities include the fire and rescue service, where there is new data and interest, and social security administration, given the introduction of universal credit. Given differences in revisions policies, any changes may appear in PSP statistics before they appear in the consolidated National Accounts outcomes.

In our annual PSP release in early 2022 we will make improvements to the measurement of the output of children' s social care, based on research conducted by Frontier Economics, commissioned by the ONS. This will use new data sources and methods to tackle long-standing measurement issues in this complex service area. This will increase the fraction of output that is directly measured from about 40% to about 80%.

Measuring new service areas

Public sector output is only measured directly (using activity indicators, rather than based on cost) for around 60% of government expenditure. The remainder is composed mostly of the military, police, and other government services. Other government services encompass a wide range of collectively-consumer services, including much central and local government activity. Direct measures are preferred where possible but are often conceptually challenging and difficult in practice because of a lack of suitable data.

We will continue research into measuring these areas, with the long-term aim of measuring directly as much of public sector output as possible. Initial priorities, based on data availability and interest from government departments, are for measures of output for cultural services and waste services.

Improving the quarterly estimates

The quarterly estimate of public service productivity has been published since 2017 to provide timelier information on the likely future path of the more robust annual statistics. At present, no service area breakdown is available for the quarterly statistic, and it is badged as experimental.

To improve, we plan to adjust labour input for changes in hours worked, since the current approach mostly uses “full-time equivalent” measures of workers. As a result of furlough during the pandemic, hours worked have proven to be a better measure of labour input than worker-based measures for productivity estimates. We will also continue to explore providing a service-area breakdown in the quarterly statistics, subject to data quality and availability.

8 . Firm-level productivity

Improving microdata for productivity

Firm-level productivity estimates rely on robust microdata, including datasets, documentation and code. To support researchers, we will update the Annual Respondents Database (ARDx) to the latest year on the Secure Research Service (SRS) in early 2022, building on recent improvements made within the Office for National Statistics (ONS). This will improve the consistency of the microdata over time, including the conversion of industry codes, and expanding documentation. We will also look to produce an introductory guide to productivity microdata analysis.

We also intend to update firm-level productivity estimates from the Annual Business Survey, and the how productive is your business interactive tool. We will continue research into firm-level capital stocks estimates, which would facilitate firm-level multi-factor productivity (MFP) analysis.

We continue to have the ambition to develop a Linked Employee-Employer Dataset (LEED) – the gold-standard of micro-datasets for economic analysis. The ONS does not currently have access to the necessary person-level dataset with business identifiers for the development of a LEED. Should this become available, we would prioritise its development, since a LEED offers enormous potential for economic analysis on diverse topics.

Management and Expectations Survey

Following two successful waves of the Management and Expectations Survey (MES) in 2017 and 2020, we will seek funding to collect more data in future waves. This will help to generate insights on the evolution of management practices over time and within businesses and offer more potential for data linkage.

We will continue to work with the Economic Statistics Centre of Excellence (ESCoE) to conduct novel analysis using the existing MES microdata on the link between management and various economic variables. Recent analysis has highlighted links with innovation, productivity, and adaptation to the pandemic. Future topics might include management as an intangible asset, and the link with firm lifecycles.

Longitudinal Business Database

Building on recent development work, we will continue to develop a Longitudinal Business Database (LBD) linking together data from many vintages of the Inter-Departmental Business Register (IDBR). The LBD would make use of quarterly IDBR data that has never previously been available outside the ONS.

Following development, we intend to make the dataset available to external researchers on the SRS. We would explore analysis on business dynamism, productivity during a firm's lifecycle, and competition.

International engagement

The ONS remains committed to international collaboration on microdata analysis and productivity. We will continue to prioritise collaboration on the OECD's MultiProd project, a distributed microdata project about firm-level productivity. Recent successful work means a first tranche of UK results are expected before the end of 2021. Further updates for the latest years which bridge changes in survey methods will follow.

The ONS is also participating in other OECD distributed microdata projects: DynEmp (on business dynamism), and MicroBeRD (on business research and development). We hope to deliver UK results on DynEmp soon, subject to resolution of minor coding issues. Updates to MicroBeRD are expected to take longer as they are dependent on the availability of linked administrative data.

9 . Related links

[Productivity development plan: 2018 to 2020]
Article | Released 06 July 2018
This development plan builds on recent improvements to Office for National Statistics (ONS) productivity statistics and looks at introducing new outputs, further improving our productivity statistics and consolidating our improvements to date.

[Assessment Report: UK Productivity statistics]
Report | Released 17 May 2021
The Office for Statistics Regulation (OSR) carried out a routine assessment of UK productivity statistics produced by the ONS. They have set some requirements for the statistics to provide additional value for users and ensure they continue to meet the Code of Practice for Statistics.

[ONS Action Plan in response to Office for Statistics Regulation assessment of UK productivity statistics]
Statement | Released 3 August 2021
In response to the OSR's assessment of UK productivity statistics, ONS published an Action Plan, addressing their requirements. The Action Plan focusses on enhancing user engagement, developing new products and analysis, and communicating data quality and uncertainty.