Office for Statistics Regulation

The state of the UK's statistical system

Office for Statistics Regulation

We provide independent regulation of 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 official statistics uphold these standards by conducting assessments against the Code. Those which meet the standards are given National Statistics status, indicating that they meet the highest standards of trustworthiness, quality and value. 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

This review sets out our view on the current state of government statistics. At their best, statistics and data produced by government are insightful, coherent, and timely. They are of high policy relevance and public interest. There are good examples of statistics that effectively support decision making in many areas of everyday life: this has been especially true during the Coronavirus (COVID-19) pandemic, when we're seeing the kind of statistical system that we've always wanted to encourage – responsive, agile and focussing on users. However, the statistical system does not consistently perform at this level across all its work.

In this report we address eight key areas where improvements could be made across the system. We set out what we would like to see to ensure government statistics better serve society's needs. In each area, we highlight examples of statistical producers doing things well. These examples illustrate the good work already happening, which others can learn from and build on. We have organised our reflections under the three headings of Trustworthiness, Quality and Value, the three essential pillars that provide the framework for the Code of Practice for Statistics.

Trustworthiness

Trustworthiness is about having confidence in the people and organisations that produce statistics and data. This confidence is essential if producers want people to use their statistics. Trustworthiness comes when the organisations that produce statistics are well-led, well-managed and open, and when the people who work in them are impartial and skilled in what they do.

Statistical leadership

Now more than ever we are seeing examples of strong statistical leadership across government, which is driving fast-paced statistical developments and ensuring that statistical evidence is at the forefront of decision making and public debate. We want to see more official statistics producers engaging openly both outside and within government, to identify and address society's key questions with courage and insight. This will help ensure the value of statistical producers is more widely understood by decision makers and the public, and that statistics are always used effectively to inform government decisions and to support society's information needs.

Voluntary Application of the Code beyond official statistics

An exciting development over the last year has been the increase in the number of organisations choosing to voluntarily apply the principles of the Code to published analytical outputs when they have no statutory obligation to do so. To build public confidence in the statistics and data used by government, we recommend all government organisations consider embracing voluntary application for analytical outputs beyond official statistics, especially when these are informing decisions of high public interest.

Quality

Quality is about using data and methods that produce assured statistics. It means that statistics fit their intended uses, are based on appropriate data and methods, and do not mislead. Quality requires skilled professional judgement about collecting, preparing, analysing and publishing statistics and data in ways that meet the needs of people who want to use them.

Quality assurance of administrative data

There is a big risk to the quality of statistics when analysts do not fully understand the nature and quality of administrative data they are working with. Our regulatory work has repeatedly highlighted that many statistical producers could strengthen their approach to quality assurance: a key part of this is building more-effective working relationships with data providers. In some cases, producers also need to do a better job of informing users about the quality of their data and statistics.

Communicating uncertainty

A key element of quality, which must be clearly communicated to make sure people understand how government statistics can be used, and to avoid misuse, is uncertainty. Statistical producers must provide a clear explanation of sources of uncertainty in data and analysis and explain what impact this has on the statistics. While there are good examples of producers clearly illustrating uncertainty in their statistics, this is not always the case and we would like to see improvements.

Adopting new tools, methods and data sources

A key way to maintain the responsive and agile statistical system we're seeing during the pandemic will be through a greater number of producers adopting new tools and increasing the reproducibility of their analyses. We have seen good examples of producers doing this, with benefits to quality and presentation, and resource savings. That said, we encourage producers to be more ambitious and move faster in this area as, overall, uptake has been rather slow.

As well as inspiring new statistics and new ways of working, the COVID-19 pandemic has presented a very real challenge to the continued provision of some data sources used to produce official statistics. Many producers are thinking, or will have to think, creatively about how they can fill the data gaps that are likely to arise during this time. In some cases, this may be an opportunity to trial new methods of acquiring data, which could have lasting benefits to the statistics.

Value

Valuable statistics support society's needs for information. They are relevant, easy to access and support understanding of important issues. Value includes improving existing statistics and creating new ones through discussion and collaboration with stakeholders

Telling fuller stories with data

We are seeing some really good examples of government organisations producing statistics that clearly and coherently address important societal and economic issues where previously such information has been scarce. Often, collaboration among multiple organisations has been key to realising this aim. We would like to see all producers thinking beyond their own statistics, taking and creating opportunities for collaboration, data sharing and data linkage, and simply referencing other relevant statistics, to tell fuller stories.

Providing authoritative insight

Even if producers are doing everything we have outlined above to provide fuller information about an issue, statistics cannot realise their value unless they are presented clearly and explained meaningfully. There are excellent examples of government statistics that are presented in an insightful way: however, many of our projects still conclude that producers should do more to ensure they deliver the insights that users need from data and statistics.

User engagement

Our vision is that statistics should serve the public good: this means they should meet the needs of a much wider range of users than ministers and parliaments. However, we still tend to find that producers focus on providing statistics that meets the needs of their immediate policy decision makers. All producers should take a broad and proactive approach to user engagement, to ensure resources are used efficiently and statistics better serve society's needs.

Introduction

Official statistics play a central role in answering society's most important questions. The most salient questions currently facing society concern the COVID-19 pandemic, its impacts and societal responses to it. Data and analysis have been crucial in informing government decisions and supporting public understanding. But the uses of official statistics extend far beyond the pandemic into peoples' everyday lives: whether you are making decisions as a head teacher, or choosing your child's school, developing policy on social housing, or trying to decide whether and where you should buy a house, have an interest in your local library remaining open, or are considering the country's major economic decisions, you may well be using official statistics.

In a world of increasingly abundant data, expectations are higher. Individuals have become accustomed to information on many aspects of society in near real time with increasingly detailed breakdowns. Official statistics need to respond to these demands for information by demonstrating trustworthiness, quality and value.

Our work as a regulator of official statistics puts us in a unique position to reflect on the UK government statistical system and, in this review, we set out our view on the current state of government statistics. We highlight examples of statistical producers doing things well, and the improvements we would like to see to ensure government statistics better serve society's needs.

The immediate target audience for this review is anyone using official statistics, whether that is to inform their own life decisions, to design, implement or review government policy, or to hold the government to account. But this review is also for everyone who produces official statistics – we want to champion the work you do, celebrate the things you do well, and encourage you to continue to improve the statistics you produce.

Who are we?

The Office for Statistics Regulation (OSR) is the regulatory arm of the UK Statistics Authority. We provide independent regulation of all official statistics produced in the UK. Statistics are an essential public asset: our aim is to enhance public confidence in the trustworthiness, quality and value of statistics produced by government.

To achieve this aim, we set the standards official statistics must meet in our Code of Practice for Statistics. We ensure that producers of official statistics uphold these standards by conducting Assessments against the Code. Those statistics that meet the standards are given National Statistics status, indicating that they meet the highest standards of trustworthiness, quality and value. 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.

Our Vision

OSR's Vision is simple. Statistics should serve the public good.

This means statistics should meet the needs of a much wider range of users than Ministers and Parliaments. The public should have access to information that is trustworthy, high quality and valuable in that it answers the questions they have. This has never been as important as it has during the COVID-19 pandemic – the public has never had a greater appetite for facts and insight.

Our Vision statement sets out what we do and why. It is complemented by our business plan, which explains our specific aims for 2020/21, which will guide our priorities and judgements through the year, and explains in detail how we work as an organisation to achieve our aims.

The statistical landscape

Official statistics are produced by a wide range of public sector bodies, including government departments, the devolved administrations, arm's length bodies and the Office for National Statistics (ONS). When statistics produced by these public bodies (called official statistics producers) meet the standards set out in the Code, as judged during an OSR Assessment, they are designated as National Statistics. A database of National Statistics, which we update regularly, is available on our website. The most recent update, on which the analysis presented below is based, was in May 2020.

Together, National Statistics and other official statistics are a rich source of evidence that can be used to explain and understand life in the UK. Here we introduce the scale and distribution of this statistical landscape.

Number of National Statistics

In May 2020, there were **831 National Statistics** in the UK.

It is more difficult to report the exact number of official statistics that are not National Statistics – official statistics producers can introduce new official statistics and stop published existing official statistics without informing OSR: however, in May 2020 we estimate there were **more than 900 additional official statistics**[1].

In **2019/20**, following Assessment, OSR awarded **seven new National Statistics** designations. These were:

- DCMS Sectors Economic Estimates (four designations), produced by The Department for Digital, Culture, Media and Sport (DCMS);
- Statistics on Cancer Survival in England, produced by ONS and Public Health England (PHE);
- Motoring Offence Statistics, produced by Police Service of Northern Ireland (PSNI), and;
- Statistics on Sickness Absence in the NI Civil Service, produced by the Northern Ireland Statistics and Research Agency (NISRA).

There was **one de-designation**: Migration Statistics produced by ONS are no longer designated as National Statistics and are instead being published as Experimental Statistics[2].

The following three sections illustrate how National Statistics are distributed among themes, producer organisations and geography.

[1] This estimate is based on discussions OSR have had with producers of official statistics.

[2] Experimental statistics are a subset of newly developed or innovative official statistics undergoing evaluation. Experimental statistics are developed under the guidance of the Head of Profession for Statistics and are published in order to involve users and stakeholders in the assessment of their suitability and quality at an early stage. An essential element of developing experimental statistics is that the process is timebound. This means that producers should set out the timeframe that they expect the development to run, giving a clear idea of expected milestones.

National Statistics by Theme

Figure 1 below illustrates the number of National Statistics that fall within each of ten subject themes OSR has identified.

Within OSR, our statistical regulators each work on one of these themes, engaging with users and producers of statistics in this area, identifying risks around the potential misuse of statistics and intervening in a timely way, and managing programmes of OSR work to deliver on our priorities. For a list of planned projects for each theme, please refer to our Regulatory Work Programme. You can also visit the domain pages on our website where you can find more information on live projects and contact details.

While we have not designated any new National Statistics related to COVID-19, we have reviewed and publicly endorsed a number of new official statistics related to COVID-19 during the pandemic, which fall under the following themes: Health and Social Care (1); Economy (1); Population and Society (1); Children, Education and Skills (2); Agriculture, Energy and Environment (1), and; Travel, Transport and Tourism (1). In one case, for statistics in the Population and Society theme, we have conferred the National Statistics designation from parent statistics to new supplementary statistics.

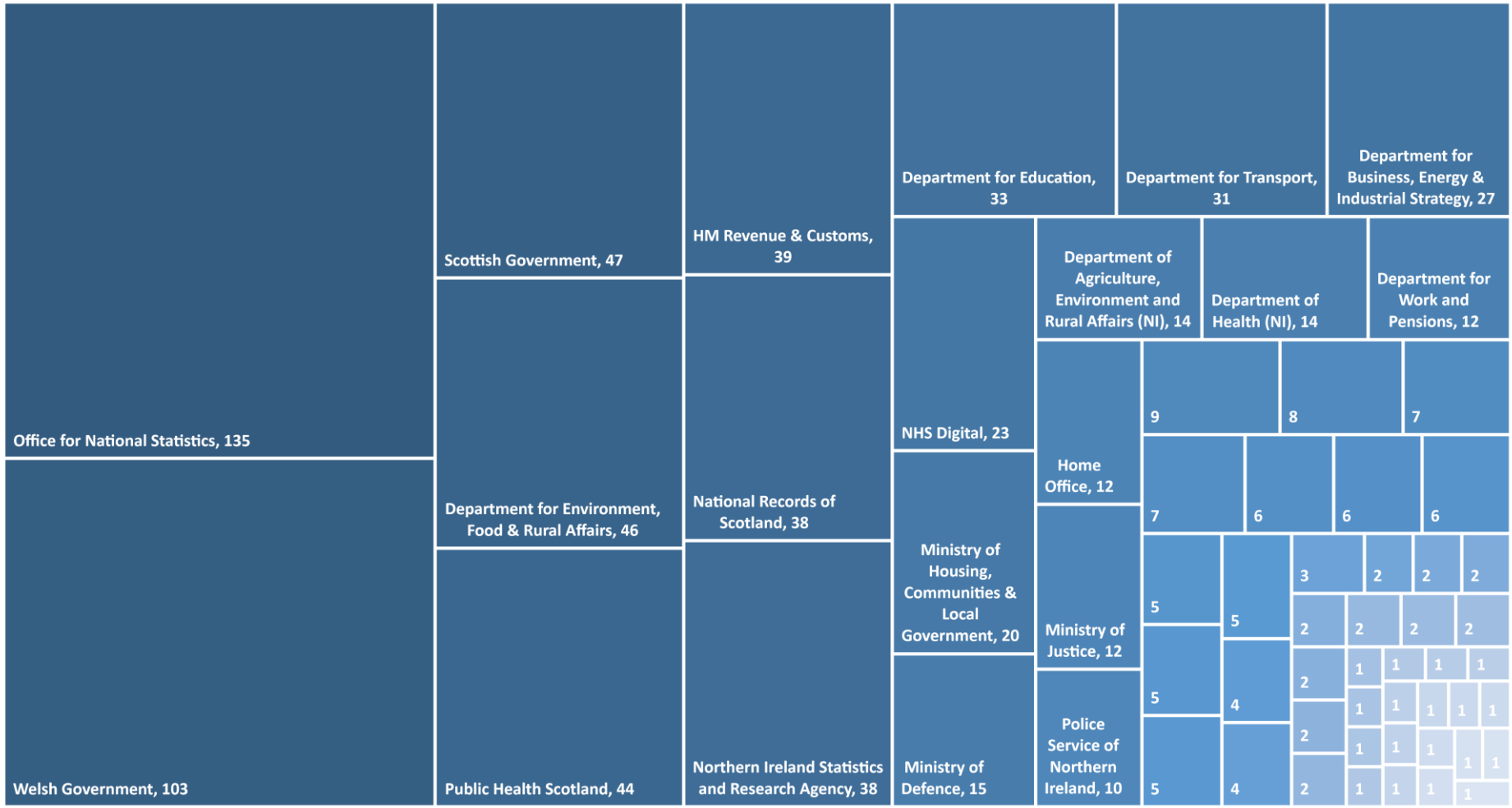
To date, we have also temporarily suspended the National Statistics designation of one set of statistics, in the Housing, Planning and Local Services theme, due to COVID-19.

Figure 1: Number of National Statistics in May 2020 by theme

National Statistics by producer

Figure 2 illustrates the distribution of National Statistics among the organisations that produce them. We have provided the name of the producer organisation where that organisation produces 10 or more National Statistics. A full list of producers and their National Statistics is published on our website.

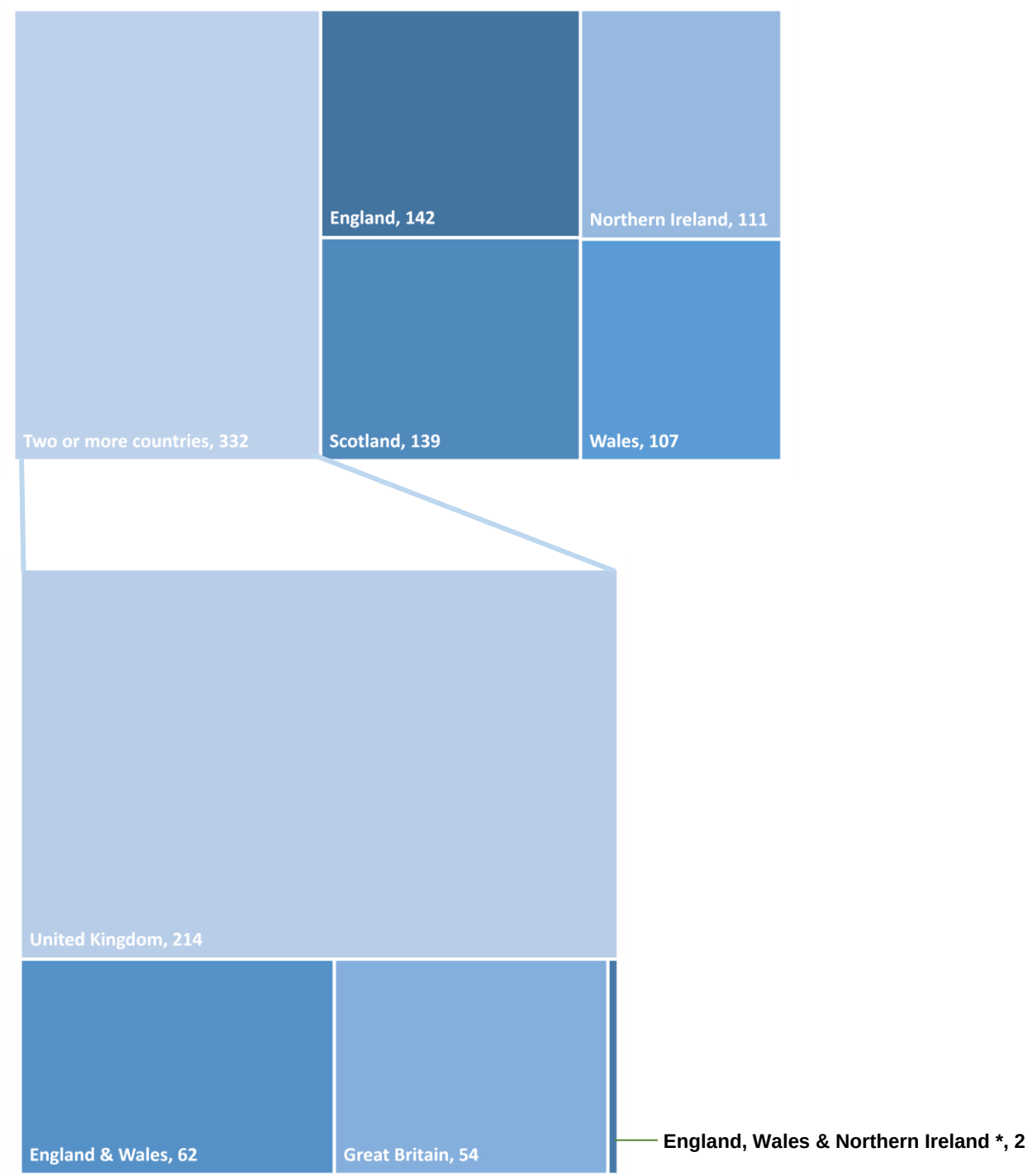
Figure 2: Number of National Statistics in May 2020 by producer



National Statistics by country

Figure 3 illustrates the distribution of National Statistics by area of reporting. 499 National Statistics relate to one country within the UK, while 214 cover the entire UK.

Figure 3: Number of National Statistics in May 2020 by country



The state of the UK's statistical system

Here we set out our view on the current state of government statistics. We highlight examples of statistical producers doing things well, and the improvements we would like to see to ensure government statistics better serve society's needs. We have organised our reflections under the headings of Trustworthiness, Quality and Value, the three essential pillars that provide the framework for our Code of Practice for Statistics.

Trustworthiness

Trustworthiness is about having confidence in the people and organisations that produce statistics and data. This confidence is essential if producers want people to use their statistics. Trustworthiness comes when the organisations that produce statistics are well-led, well-managed and open, and when the people who work in them are impartial and skilled in what they do.

Statistical leadership

Our vision is statistics that serve the public good. To realise this vision, the people who produce statistics must be capable, strategic and professional. They must, in short, show leadership. Effective statistical leadership requires individuals at all levels and across professions to stand up for statistics and champion their value.

Where there is strong statistical leadership, there is the confidence to engage openly both outside and within government and to identify and address society's key questions with courage and insight. The Coronavirus (COVID-19) pandemic has afforded several examples of authoritative statistical leadership in very challenging circumstances, which has helped to ensure that statistical evidence is at forefront of decision making and debate.

Statistical producers have moved quickly to address data needs during the pandemic, with ONS establishing the Coronavirus (COVID-19) Infection Survey, for example. This survey is key to understanding prevalence and the rate of COVID-19 infection and is helping to inform decisions related to management of the pandemic, including the lifting of lockdown in England. Statisticians and other analysts are engaging confidently within government, maintaining statistical rigour while demonstrating understanding of – and responding to – policy needs, but also outside of government: during the pandemic great prominence is being given to expert views, with an increased media presence from statisticians, including the National Statistician at the daily COVID-19 briefings in England, which ran from March 2020 until 23 June 2020.

We also see examples of analysts championing orderly release and equal access to statistics and challenging inaccurate interpretation or inappropriate use of statistics, all of which are key to maintaining public confidence in statistics and in analysts themselves. Some analysts, such as those at the Department for Transport, have made the case for more orderly release of data related to COVID-19, improving transparency to the public, while others, such as those in the Northern Ireland Statistics and Research Agency (NISRA) proactively communicated with the press about statistics related to COVID-19, to ensure they were interpreted appropriately.

Away from the pandemic, our Assessment of ONS UK employment and jobs statistics commended the statistical team for challenging inappropriate use of the employment and jobs statistics and for publicly defending the published statistical estimates. These statistics are key economic indicators, and vital for understanding the patterns and dynamics of the UK labour market: it is therefore

essential that they are not used in a misleading way. We have seen similar actions from others in ONS, such as the team responsible for crime statistics.

However, our ongoing review of statistical leadership suggests that there are occasions where analysts are not sufficiently highly valued or involved in policy development, or have limited opportunities to develop broader leadership and communication skills that would enable them to more clearly demonstrate their value. We want the value of statisticians and other analysts to be understood by all influencers and decision makers, so that statistics are always used effectively to inform government decisions and to support society's information needs. To help achieve this, our work has shown that all producers of statistics must ensure they have a good understanding of the policy or organisational context they work in. For our part, we will continue to highlight the value of analysts to decision makers and use our influence to advocate the value of statistical insights. We will also work with statisticians to help them articulate their value, and with those supporting their development, to emphasise the importance of opportunities for statisticians to develop a broader range of leadership skills.

During our work we have been pleased to see many organisations and teams that are committed to the ongoing development and improvement of the statistics they produce. Our review of Capital Stocks and Fixed Capital Annual Consumption statistics commended the ONS for the extensive work it has done to improve the quality of these estimates and for its comprehensive work to prepare users for the scale and direction of changes. Some of the other types of developments we have seen are covered in more detail below. They include embracing new tools and methods of production, presenting data in innovative ways, developing new data sources and bringing together existing data sources to tell fuller stories and the creation of new statistics to meet user needs. These kinds of developments require producers of statistics at all levels to show leadership: those producing the statistics need to be proactive and have ambition, while those who manage them need to foster an environment that enables developments, championing innovation and ensuring access to appropriate tools, as well as resource.

Without statistical leadership, official statistics can fail to develop and improve, and our work has highlighted areas where we need to see more active and ambitious leadership to drive forward improvements. Our Assessment of UK employment and jobs statistics found a clear need for statisticians to make a stronger case for prioritising developments and to use their initiative to enhance the quality and value of the statistics, for example. Statisticians can face challenges in the competing demands between departmental priorities and serving wider user needs: this is especially true in the current pandemic, when resources are even more stretched. In our role as regulators, we will support statisticians in upholding the Code as well as highlighting the importance of this aspect of their roles to those they report to.

Voluntary Application of the Code, beyond official statistics

Since our creation in 2016, we have established a clear philosophy based around the importance of trustworthiness, quality and value, as set out in our Code. Statistics and data should demonstrate these principles to ensure they are of high quality, useful for supporting decisions, and well respected.

One of the most exciting developments over the last year has been the increase in the number of organisations choosing to voluntarily apply the pillars of the Code to published analytical outputs, such as management information, when they have no statutory obligation to do so. We have seen a range of organisations, including government departments, take up voluntary application. The Department for Environment, Food and Rural Affairs; the Department for International Development; HM Courts & Tribunal Service; the Scottish Government; the Department for Work and Pensions; the Ministry of Housing, Communities and Local Government; the Cabinet Office; HM Treasury; and Qualifications Wales have all already elected to apply the Code pillars to some of their data and analysis that are not official statistics. We have also noted willingness by the UK Government to voluntarily apply the pillars of the Code when publishing management information and data related to COVID-19 in a range of cases.

The fact that these organisations have voluntarily applied the pillars of trustworthiness, quality and value is one of the strongest testaments to their power: we believe the increasing application of these pillars reaffirms producers' awareness of and willingness to address the importance of building public confidence in statistics. We would like to see more government organisations embracing voluntary application of the Code for analytical outputs beyond official statistics, especially when these outputs are informing decisions that are of high public interest.

While our focus for 2020/21 is promoting voluntary application on government analytical outputs, we want to encourage adoption of the Code philosophy as widely as possible. We are delighted that, alongside government organisations, other organisations outside of official statistics have applied the Code pillars, such as a regulator – the Financial Conduct Authority; an independent commission – the Social Metrics Commission; an independent charity providing advice to students – Universities and Colleges Admissions Service (UCAS); local government bodies in the Greater London Authority; and an international statistics body – Statistics Jersey. A full list of organisations that have made a public commitment to applying the pillars to their statistics analysis or data in a statement of compliance is available on our website.

Earlier this year, OSR joined with the Royal Statistical Society and Civil Service World to reward excellence in the voluntary application of the pillars through a new Voluntary Application Award. We had lots of good entries with the winners being announced later this year.

Quality

Quality is about using data and methods that produce assured statistics. It means that statistics fit their intended uses, are based on appropriate data and methods, and do not mislead. Quality requires skilled professional judgement about collecting, preparing, analysing and publishing statistics and data in ways that meet the needs of people who want to use them.

Quality assurance of administrative data

There is a big risk to the quality of statistics when analysts do not fully understand the nature and quality of administrative data they are working with.

Our recent regulatory work has identified a weakness among some producers working with administrative data, who do not always fully understand the nature of their data. This was one of the key findings in our review of the quality management of HMRC's official statistics and our systemic review of statistics on housing and planning. More widely, we advised that producers use our Quality Assurance for Administrative Data (QAAD) toolkit in 11 reviews of statistics and data in 2019/20: this was mainly in short reviews of National Statistics (called compliance checks), but also in two Assessments (Cancer Survival statistics and UK employment and jobs statistics) and in our systemic review of social care statistics. In many cases, producers have not used the toolkit at all and where they have, improvements are still required.

Although it can sometimes be challenging, all producers should be fully assuring themselves of the quality of their input data and building effective working relationships with data providers to facilitate this. Long-term improvements to quality management will depend on building these effective relationships, so that understanding and responsibility for the production of official statistics can be shared across all areas within organisations that are directly or indirectly involved in statistics production, especially those that own or process administrative data. Ultimately, better statistics support better organisational delivery.

To make sure people using government statistics are well informed about the quality of published statistics, producers should always explain how they assure themselves that statistics and data are accurate, reliable, coherent and timely. While there are examples of National Statistics and official statistics that are accompanied by very comprehensive information about the quality of their data and statistics for their users, such as the Legal Aid statistics produced by the Legal Aid Agency, and the Welsh Government's Homelessness statistics, we would like to see more producers doing a better job of this. For statistics based on administrative data, we would like to see published information that more clearly demonstrates how all four of the practice areas associated with data quality, outlined in the QAAD toolkit, have been addressed.

Communicating uncertainty

To help users of official statistics understand how they can be used, sources of uncertainty in data and analysis should be identified and explained, along with the extent of any impact on the statistics.

We have found some good examples of producers clearly illustrating uncertainty in their statistics: we found effective signposting and presentation of uncertainty in the NI Labour Market bulletin, for example, which is now being used as a case study for communicating uncertainty well by the Government Statistical Service (GSS) Good Practice Team. However, this is an area where we need to see improvements, as producers do not always communicate the uncertainty in their statistics as well as they could. This was highlighted in our recent Assessment of UK employment and jobs statistics where, currently, uncertainty is not fully reflected in the messaging and visualisations, which means users could conclude, inaccurately, that the estimates are precise. In this instance, and in others where statistics are based on survey data, producers must help users of the statistics understand what a margin of error associated with an estimate means and be clear

whether changes over time or differences among groups are meaningful. In other words, are the changes real or might they occur because of the way that households or businesses are sampled.

We are exploring how we can use the Winton Centre for Communicating Risk's framework for describing uncertainty to help our regulatory work, and our challenge to statistics producers. The Winton Centre has also started working with some ONS statistical producers directly (teams producing high-profile statistics relating to migration and labour market employment and jobs) to help them to ensure their statistics can be correctly understood and trusted.

Adopting new tools, methods and data sources

Statistics producers should be creative and motivated to improve statistics and data, recognising the potential to harness technological advances for the development of all parts of the production process. During the COVID-19 pandemic, we're seeing the kind of statistical system that we've always wanted to encourage – responsive, agile and focussing on users – we hope this will endure once the pandemic is over.

One of the key ways to achieve this will be through more producers adopting new tools and increasing the reproducibility of their analysis. These tools include programming languages, version control software, Code sharing platforms and collaboration tools. The GSS Quality Centre, recommend using these tools to automate some or all of the production process in their best practice guidance (GSS Quality Strategy and Quality statistics in government guidance).

We have seen good examples of producers across the GSS using new tools and automation to make analysis more reproducible, with associated benefits to quality and presentation, and resource savings. In many organisations, at least some statistics are now partially automated or produced entirely using Reproducible Analytical Pipelines[3] (RAP), with further work ongoing to identify additional statistics that would most benefit from adopting this approach.

This said, we would encourage producers to be more ambitious and move faster in this area as, overall, uptake has been rather slow. We know from our regulatory work (and in some cases our own experience as producers) that sometimes producers are not able to access or use some or all these tools. To improve our understanding of which tools producers have access to, and how producers can overcome barriers to getting and implementing new tools, we plan to conduct a systemic review of this area in 2020.

As well as inspiring new statistics and new ways of working, the COVID-19 pandemic has presented a very real challenge to the continued provision of some data sources used to produce official statistics. This includes statistics on high profile topics that are of great public interest, such as those on migration, employment and crime. Most obviously, those statistics that previously relied on face-to-face survey data have been affected, as these surveys have had to pause, but, in many areas, the quality of data from administrative data sources has been affected too. In these cases, we expect producers to evaluate and explain the impact of changes in the circumstances and context of data sources on the statistics. Many producers are thinking, or will have to think, creatively about how they can fill the data gaps that are likely to arise during this time. In some cases, this may be an opportunity to trial new methods of acquiring data – using telephone or online surveys instead of face-to-face surveys, for example, or investigating administrative data sources that have not previously been used – which could have lasting benefits to the statistics in the future.

[3] There is a good explanation about Reproducible Analytical Pipelines (RAP) in the GSS Quality statistics in government guidance. This document clarifies what RAPs are, the benefits of RAPs and provides information on where producers wishing to learn more about implementing RAPs can get further support.

Value

Valuable statistics support society's needs for information. They are relevant, easy to access and support understanding of important issues. Value also includes improving existing statistics and creating new ones through discussion and collaboration with stakeholders.

Telling fuller stories with data

Statistics published by government should shed light on key issues. To do this they will often need to draw on a range of sources to provide a single story and support users to understand how statistics fit with other published outputs. They also need to be as complete as possible – public debate can be harmed if statistics on an important topic are not available.

We are seeing some very good examples of organisations producing statistics that clearly and coherently address important societal issues, where previously the information has been scarce. Often, collaboration among multiple organisations has been key to realising this aim. We would like to highlight the work of ONS, which has (in collaboration with other organisations within and outside of government) produced new, influential statistics on a range of important issues facing society, including deaths of homeless people, student suicide, domestic violence and child abuse. Drawing on data linkage, innovative techniques and partnerships with civil society, ONS made use of available data sources to produce new insights. Similarly, through the Economic Statistics Centre of Excellence (ESCoE), ONS has been able to collaborate with a community of academics and experts in economics to help them better describe and measure the economy. Housing, planning and homelessness is another area where statistics have benefitted from increased engagement between producer teams across the four UK countries. This engagement has led to better coherence across similar statistics and progress in filling data gaps, with new experimental statistics on homelessness.

We have also seen good examples of new statistics being produced to address specific topical issues that are of high public and political interest. This includes new official statistics from the Home Office to report on progress against the UK Government's intention to recruit an additional 20,000 police officers, new official statistics from the Department for Education on the funding of schools in England, and new statistics relating to the COVID-19 pandemic: OSR has publicly endorsed new statistics produced by ONS, the Welsh Government, the Department for Education, the Department for Transport and Natural England.

OSR also continues to emphasise the power of linked data to produce better statistics. To highlight one exciting project in this area: in collaboration with Administrative Data Research UK, the Ministry of Justice is undertaking an ambitious data linkage project called Data First. Data First will anonymously link data from across the family, civil and criminal courts in England and Wales, enabling research on how the justice system is used, and statistics that move from counting people as they interact with specific parts of the justice system to telling stories about the journeys people take.

However, gaps in data persist in some areas, with the result that users are not getting data and statistics they need. Our review of social care highlighted a number of data and analysis gaps, as has our Assessment of the National Rail Passenger Survey, and our review of policing statistics. There are also several topic areas where we know there is an unmet demand for local data, such as air quality and pollution, and crime. During the COVID-19 pandemic, we have seen the opposite problem as well. Generally, an absence of data has not been a problem, instead we have data in lots of different places and members of public can have to go to several organisations to build up a full picture of the situation. We would like to see all producers thinking beyond their own statistics, taking and creating opportunities for collaboration, data sharing and data linkage, and simply referencing other relevant statistics, to tell fuller stories. Our Insight report on coherence in July 2019 highlighted good examples from across the GSS and set out a framework to support analysts' approach to coherence when developing and disseminating statistics.

Providing authoritative insight

Statistics and data should be presented clearly, explained meaningfully and provide authoritative insights that serve the public good.

Even if producers are doing everything we have outlined above to provide fuller information about an issue, statistics cannot realise their value if the overarching narrative provided is not adequate. The need for clearer presentation of data or statistics has been a feature of several of our public interventions during the 2019 UK general election and on other occasions when OSR has investigated the potential misuse of statistics. In the 2019 UK general election, while we rightly highlighted misstatement by political parties, in several of these cases (like crime statistics, or youth unemployment in Scotland) clearer statements about what could and could not be concluded from the data and statistics by the producers would have made it harder to misrepresent the statistics.

We have found several excellent examples of statistics that are presented in an insightful way. We have commended statistical teams on the insightful way they present statistics in several of our recent compliance checks, including our review of statistics from the Scottish June Agricultural census, produced by the Scottish Government. In this instance, the statistics team has designed the statistical bulletin with a range of users in mind, including the policy team and lay readers. The team has thought carefully about how it can help users answer key questions on the farming sector in Scotland. They have done this by structuring the bulletin around the main message and by providing clear, insightful and accessible commentary that is supported by data visualisations that aid interpretation of the statistics. The "statistician's comment" that is provided at the top of some ONS bulletins is another example of an effective way to convey the main messages within a statistical bulletin.

However, many of our regulatory and other projects conclude that producers should do more to ensure they deliver the insights that users need alongside data and statistics – either through improved commentary, extra analysis or insightful graphics etc**.** Recent examples include our compliance check of ONS Business Demography statistics and our ongoing work to improve the presentation and contextual information provided around public funding announcements, which has resulted in us publishing our own guidance for statements about public funding. This guidance has two aims: to support and aid understanding of funding statements, and to encourage those producing them to ensure they are clear and can be understood by all. The GSS Good Practice Team provides guidance on writing about statistics, which outlines principles for presenting analysis and data in an insightful way.

User engagement

Users of statistics and data should be at the centre of statistical production; their needs should be understood, their views sought and acted on, and their use of statistics supported. Statistics producers should also consider the ways in which the statistics might be used and the decisions that are or could be informed by them.

We still tend to find that producers focus on providing statistics that meet the needs of their immediate policy decision makers, rather than thinking more widely about the public good of statistics. We have made recommendations that focus on widening and taking a more proactive approach to user engagement in most of our regulatory projects: recent examples include our compliance check of Overseas Travel and Tourism statistics and our Assessment of NI Motoring Offence Statistics. In other work, our review of ONS's approach to addressing weaknesses in the Retail Prices Index for example, we have emphasised the need for continuous user engagement and for keeping statistics under review, so that they continue to meet users' needs.

Our review of user engagement in the statistical producers that make up the Defra Group[4] has enabled us to explore, in depth, how individual statistics teams and the Defra Group as a whole approach user engagement and the difficulties they can face. We found many examples of effective engagement with users and other stakeholders, but also examples where teams should do more to understand the broader uses of their statistics, could be more proactive in engaging with users, and could promote their statistics more widely (by exploring a range of online channels to reach their users – such as blogs, articles and online forums – for example). Greater transparency about user engagement activities could also encourage more users to get involved in the production and development of Defra Group statistics. Teams within the Defra Group felt the biggest barrier to user engagement was a lack of resource, as well as the challenges that come from having a wide variety of people using their statistics.

While we recognise challenges to effective user engagement may differ among organisations, the findings of our work in Defra are likely to be applicable to other organisations producing statistics across the government. The GSS Best Practice and Impact Division is producing a new GSS-wide strategy for user engagement, due in 2020, which will help producers understand what good user engagement can look like and to overcome barriers: OSR is on the Steering Group for the strategy, to help ensure that the expectations and ambitions of our Code in this area are realised.

Our work has consistently demonstrated that the demands on analysts who produce official statistics are often high, and lack of resource can be a real barrier to innovation and user-led improvement. Engaging with users to review current National Statistics and official statistics publications, with a view to reducing the number or size of publications that are infrequently used, can be an effective way of ensuring resources are used efficiently and potentially to free up some resource. We know this approach has already been used within HMRC, for example, and we would encourage all producers to routinely undertake this kind of activity.

[4] By the 'Defra Group' we mean the Department for Environment, Food & Rural Affairs and its Executive Agencies, Forestry Commission and those Defra Arm's Length bodies that are designated as producers of official statistics: Environment Agency, Joint Nature Conservation Committee, Marine Management Organisation and Natural England.