Office for Statistics Regulation

UK Statistics Authority

Assessment of compliance with the Code of Practice for Statistics

The Living Costs and Food Survey

(run by the Office for National Statistics)

Assessment Report 358

July 2021

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 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.

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Summary

Why we carried out this review

1.1 A household expenditure survey has been conducted each year in the UK since 1957. Since 2008, this has been in the form of the Living Costs and Food Survey (LCF), which collects information on spending patterns and the cost of living that reflect household budgets. It is the most significant survey on household spending in the UK and provides essential information for key social and economic measures including price indices. LCF data are published annually by ONS in Family Spending in the UK, and are also used in the production of other statistical series such as the Retail Prices Index (RPI).

1.2 In recent years, there have been several errors in LCF data which have led to errors in the RPI in both 2019 and 2020 through the use of incorrect expenditure weights. In 2020 for example, if the corrected LCF dataset had been used, it would have led to an upward revision of 0.1 percentage points to the published RPI annual growth rate for six months of 2020. In line with its policy not to make revisions, ONS did not revise the time series for the RPI. The errors in LCF data also affected the Office for National Statistics' (ONS) Family Spending statistics for years 2017-18 and 2018-19, as they are the main output of LCF data.

1.3 In line with the Office for Statistics Regulation (OSR) and ONS strategies, we have carried out an assessment of the LCF against the Code of Practice for Statistics. Our review aims to identify opportunities to improve the quality and public value of LCF data. To inform our review, we spoke to a range of statistics producers and users who make use of LCF data, to understand the impact of LCF on other statistics and data.

What we found

1.4 The LCF data processing system is not fit for purpose. The system is unstable, often producing inconsistent results between processing runs of data. The statistics team has endured challenges with the system and resource it is working with to run the LCF, and it has done remarkably well to keep the LCF afloat in spite of these challenges.

1.5 We found that the LCF is highly valued by users and is seen as unique in bringing together data on spending habits with information on the households who are doing the spending. Users we spoke to do not see an alternative approach to collecting this information in the short term that does not involve a survey in some form. The production of the LCF is supported by a steering group made up of statistical teams in ONS and other government departments who use LCF data, as well as external think tanks. The LCF team would like to enhance its engagement with internal and external users, across academia, the private sector and other government departments, to ensure developments best meet user needs.

1.6 The COVID-19 pandemic has seen the landscape of user need change with increased demand for timely and granular data. The LCF has been underperforming in terms of sample size and response rate in recent years and this was highlighted

as the main limitation of the LCF by users we spoke to. Without an increase to the sample size, the devolved administrations are unable to make use of many of the categories available in the LCF data.

1.7 The quality assurance arrangements that the LCF team has in place are generally appropriate for the data and go some way to reduce the risk of errors associated with the processing systems. However, the sample size of LCF can make it difficult to determine whether changes between periods are genuine or not. We heard from users of LCF data in ONS that widening access to the LCF data for the purposes of quality assurance could support the LCF statistics team in identifying errors and would allow it to focus on the pre-processing stages.

1.8 In 2016, a National Statistics Quality Review (NSQR) was carried out for the LCF. The NSQR recommended several alternatives that could be explored to improve the response rate and thus the achieved sample size of the LCF. The team has taken forward most of the recommendations with no additional headcount being allocated to progress them. The remaining recommendations remain relevant to improving LCF.

1.9 The lack of progress in the use of alternative and administrative data sources in the UK has impacted on the quality, accuracy, and international comparability of the LCF data, a perspective which is seen as important to users to gauge the impact of Brexit and the pandemic on UK households.

Requirements and next steps

1.10 We have identified several ways the LCF needs to be improved to meet users' needs and to comply with the highest standards of the Code. Urgently fulfilling the requirements of this assessment is necessary to ensure that the LCF and its outputs continue to be fit for purpose. In order to retain the National Statistics status for *Family Spending in the UK*, we require ONS to:

a. Demonstrate a positive direction of travel by making some short-term gains by the end of 2021 as follows:

   i. ONS needs to take remedial action to improve the stability of the existing LCF processing system and to develop a new system which meets the needs of users and the staff running the systems.

   ii. ONS should enhance its understanding of the value of the statistics by improving its engagement with users, within and outside ONS, to capture a wide range of views and use these to drive its priorities for development. ONS should reflect on the Government Statistical Service's User Engagement Strategy for Statistics to help determine the best methods for engaging with users.

   iii. ONS should provide a mechanism and relevant access for other teams in ONS who make use of LCF data to be able to contribute to the quality assurance of the data.

b. Publish a plan which includes specific actions, deliverables and a timetable by the end of March 2022, that explains how it will address the following strategic improvements:

i. ONS needs to develop a solution to address user need for more-granular breakdowns of data, so that the devolved administrations and other key users can use the statistics in the ways that they need to for the public good.

ii. ONS needs to invest time and resource to pursuing initiatives to improve the quality and robustness of LCF data. ONS should be open to creative solutions to improve the response rate, such as continuing exploring the use of different short and long form questionnaires/diary, alternative sampling strategies and linking with other data sources, rather than focusing only on increasing the existing sample.

1.11 We have also highlighted several considerations for ONS to reflect on as part of its LCF and RPI improvement project.

a. ONS should consider extending the scope of its project work to include input from some of its key external users, such as those in the devolved administrations, where additional intelligence could be gathered on the use and issues faced by the government in its use of LCF data.

b. ONS should consider the management of risks throughout the end-to-end production process as part of the LCF projects medium term work and ambitions.

c. ONS should determine a longer-term solution for the LCF which draws on a broader base of data, international best practice and wider transformation initiatives.

1.12 We expect ONS to report back to us every quarter, starting from the end of September 2021, demonstrating its progress against these requirements. We will review the National Statistics designation of *Family Spending in the UK* at each of these points.

Detailed findings

Introduction

2.1 A household expenditure survey has been conducted each year in the UK since 1957, with the LCF being the approach since 2008. The LCF is the most significant survey of household spending in the UK and provides essential information for key social and economic measures, including Gross Domestic Product and price indices such as the Retail Price Index (RPI). LCF data feed into a number of Office for National Statistics' (ONS) statistics on household income and expenditure and the main results from LCF are published in the annual report Family Spending in the UK. The Family Spending statistics are widely used by other government departments, local authorities, financial institutions, academia and the media. These users are often interested in using the data to analyse how spending behaviours vary for different levels of household income, as well as understanding how spending behaviours for different groups have changed over time. As well as information on income and expenditure, the LCF data are used by the Department for Environment, Food and Rural Affairs (DEFRA) in producing its statistics on food consumption.

A vital and unique source of information on spending behaviour

2.2 We found that the LCF is highly valued by users and is seen as unique in bringing together spending habits with information on the households who are doing the spending. This relationship is something that alternative sources of information on expenditure do not tend to capture, as administrative sources of income data do not contain the same detail of information on household characteristics. Users told us that they do not see an alternative to a survey-based approach in the short term as this relationship with household characteristics is more valuable than the expenditure data alone. We also heard from some users that LCF data are valuable in supporting distributional analysis – the process by which the effect that a policy programme or funding decision may have on individual groups within society is measured.

2.3 The nature and aims of household expenditure surveys have changed over time and some users raised concerns that the LCF may be trying to do too much in its current form and therefore is being used for some purposes for which it was not intended. Similarly, ONS needs to work with users to understand the ways in which the use of LCF data is being stretched beyond its purpose. Some users told us that the LCF is limited by its coverage of only private households and other users felt there would be value in reviewing whether the goods and services included in the LCF reflect spending in today's economy.

2.4 The production of the LCF is supported by a steering group made up of statistical teams in ONS and other government departments who use LCF data, as well as external research agencies such as the Institute for Fiscal Studies and the Resolution Foundation. This group normally meets twice a year and is updated on the latest issues and developments concerning the LCF. While this group is designed to inform the developments of the LCF, we heard from the LCF statistics

team that the group tends to be a forum for listening rather than for steering. Similarly, while ONS teams who use LCF data are invited, they do not always attend. The LCF team would like to enhance its engagement with internal and external users to ensure developments best meet user needs. **ONS should enhance its understanding of the value of the statistics by improving its engagement with users, within and outside ONS, to capture a wide range of views and use these to drive its priorities for development. ONS should reflect on the Government Statistical Service's** User Engagement Strategy for Statistics **and determine the best methods for engaging with users.**

The statistics team is capable but working with unfit systems

2.5 The Living Costs and Food Survey (LCF) collects information on spending patterns and the cost of living that reflect household budgets. It is conducted throughout the year, across the whole of the UK. The completed diaries and interview data are coded and edited electronically by a team in ONS to ensure internal consistency for each case received. Once complete, the LCF statistics team carries out further quality assurance checks before processing the data to produce the derived variables and the production of the LCF datasets. The data are then weighted and final datasets produced on a quarterly and annual basis.

2.6 We heard positive feedback from users of LCF about the professional capability of the LCF statistics team. The team keeps its key stakeholders updated when issues arise and is helpful in responding to queries. We found that despite the recent errors highlighted in the summary of this report, the LCF has largely continued to provide business-critical information.

2.7 The statistics team has endured challenges with the systems and resource it is working with to run the LCF, and it has done remarkably well to keep the LCF afloat despite these challenges. However, this has been at the expense of being able to dedicate time to develop the LCF. The team was reduced from two senior research officers to one at the time that Q-Stat tools (a processing package used in the creation of tables from LCF) were being replaced with an Excel and SAS-based system, as the new system was supposed to free up resource. However, the new system did not create as much of an efficiency saving as envisaged.

2.8 The current resourcing pressures mean the statistics team struggles to get an overview of the whole process of LCF – from writing the questions to producing the microdata sets. For the process to work effectively, there needs to be more than one person understanding the different stages of running LCF to be able to identify the impact of errors when they occur. The statistics team told us that maintaining two senior research officers would have alleviated some of the pressure faced by the team and allowed for capacity to analyse the data, progress the development work and take a step back to see the bigger picture.

2.9 The LCF data processing system is not fit for purpose and external stakeholders raised concerns to us about the longevity of LCF in its current form. The system is unstable, often producing inconsistent results between processing runs of data and requiring extensive manual checks following processing of annual (more than 100 manual checks) and quarterly (approximately 30 checks) data. This has led to a heavy mistrust in the data by teams in ONS.

2.10 While some ONS systems have been heavily invested in, such as those which produce trade-in-goods and regional Gross Domestic Product statistics, others like LCF have remained on legacy technology. Around nine years ago, a project was set up to explore how much it would cost to move LCF onto a new system. The initial discovery piece considered that doing so would be too costly, so some investment was put in to rewrite the aggregation in SAS and Excel. Opportunities to move LCF onto a new system are complicated by the nature of the diary tool being unique to LCF and the fact that LCF data have so many different dependencies. These issues appear to have restricted ONS's appetite to develop the LCF.

2.11 Successful day-to-day management and development of the existing legacy system is impeded by the lack of staff trained in the system's coding language (Manipula), which is unique to the LCF. The code is seen as overly complex, having been developed on an ad-hoc basis over time, and has resulted in a lack of understanding of how it works and therefore how to make adjustments. Central support to maintain parts of this system is not available. While, on occasions, support has been provided by the Blaise Development and Standards team, this is not a sustainable model. The natural turnover of staff means that as someone begins to understand the system, they tend to move on and the problem persists. This skill risk, coupled with an unstable and inconsistent system, are clear contributory factors to the recent errors in LCF data. **ONS needs to take remedial action to improve the stability of the existing LCF processing system and to develop a new system which meets the needs of users and the staff running the systems.**

The sample size of the LCF is a limitation of its use

2.12 The COVID-19 pandemic has seen the landscape of user need change with increased demand for timely and granular data. The LCF has been underperforming in terms of sample size and response rate in recent years and this was highlighted as the main limitation of the LCF by users. In the last two years, the LCF has achieved a sample of around 5,000 households out of a set sample of close to 13,000 households. The response rate has fallen from 51 per cent to 43 per cent since 2008. Due to the paper diary nature of LCF, and its burden on respondents, the LCF has been particularly hit in a wider pattern of falling response rates in social surveys. The LCF statistics team told us that the sample size was cut in 2006, due to a promise of a new allocation tool which would allow for a new un-clustered sample but the tool was never delivered. Prior to the COVID-19 pandemic, the LCF statistics team carried out a review of incentives. Incentives are used to encourage response rates and often take the form of money or a gift voucher which is provided to the respondent in exchange for completing a survey. The team tested a range of monetary incentives as well as unconditional incentives. From May 2021, the LCF has increased its conditional incentive to a £50 voucher for each adult who completes the questionnaire and diary.

2.13 The small achieved sample size makes it difficult for users to draw useful and robust conclusions from the data, particularly for individual categories and geographies. Some users told us that the sample size is too small to ensure accuracy when the spending categories are so detailed, and that even data for total spending are volatile over time, which limits their usability. As some users need to

analyse the LCF data to such a precise level, the small sample size can create issues for understanding the validity of changes within individual categories where they relate to a small sample. For example, relatively few households buy a car each year which means the reported data on purchases of cars are based on a small sample of households. There is a risk of reputational damage for ONS where unusual changes in the results are assumed to be genuine and put down to small sample sizes and not identified as genuine errors, which can lead to a large impact on the price indices which use the LCF data for their weighting.

2.14 The LCF data are reported in the Family Spending statistics using Classification of individual consumption by purpose (COICOP) categories, an internationally recognised classification system consistent with that used by UK National Accounts. LCF data are currently reported at a 4-digit level of COICOP 1999 but the consumer trends team in ONS told us that there is a longer-term requirement to move to the updated COICOP 2018 which LCF would struggle to meet in its current form.

2.15 Statistics producers in the devolved administrations that we spoke to also expressed interest in wanting to replicate analysis that is carried out by HM Treasury for England, but which currently cannot be done for the other nations due to the small sample size. Without an increase to the sample size, the devolved administrations are unable to make use of some of the categories available in the LCF data. This prevents them from being able to draw comparisons with data for England, which impacts on budgetary analysis for the devolved administrations. **ONS needs to develop a solution to address user need for more granular breakdowns of data, so that the devolved administrations and other key users can use the statistics in the ways that they need to for the public good.**

Quality assurance arrangements should be enhanced through widening data access

2.16 The quality assurance arrangements that the LCF team has in place are generally appropriate for the data. There is a quarterly round for ongoing quality assurance, in which the team extracts the data which will be delivered to National Accounts and carries out a range of checks to compare against previous quarters and totals. Additional checks are carried out on the annual round, which include looking at partial cases and running imputations for missing diaries. Detailed audit trail spreadsheets are produced to keep a record of the checks that have been carried out at each stage.

2.17 Lots of variables that are available in the final LCF data tables are derived through the processing system. As highlighted in the previous section, this processing system is error prone and a substantial amount of time can be lost to resolving these errors. If an error in a variable is detected, the team has to rerun the whole code to check that the fix hasn’t inadvertently caused an error elsewhere. Each time the system is run, it produces 20 datasets which need to be individually checked and can therefore take a long time to resolve. This has led to a heavy mistrust in the data by teams in ONS.

2.18 As highlighted earlier, the sample size of LCF can make it difficult to determine whether changes between periods are genuine or not. The volatility of the data makes it difficult to pick up outliers when there is constant change. The LCF

statistics team does look to alternative sources to try to verify counterintuitive results where possible, but it is not always clear which sources to take into consideration.

2.19 We heard from users of LCF data in ONS that widening access to the LCF data for the purposes of quality assurance could support the LCF statistics team in identifying errors and would allow it to focus on the pre-processing stages. These teams felt that if LCF data aggregation was moved within the Economic Statistics Group (ESG), it would allow more investigations to be carried out in one place and each of the teams using the LCF data could bring their perspective to assessing counter intuitive results to determine whether the changes are genuine. However, it should be noted that not all users of LCF data in ONS are in ESG and the main publication using LCF data, *Family Spending in the UK*, is published by a different area in ONS. **ONS should provide a mechanism and relevant access for other teams in ONS who make use of LCF data to be able to contribute to the quality assurance of the data.**

ONS should explore creative solutions to improve the robustness of LCF data

2.20 In 2016, a National Statistics Quality Review (NSQR) was carried out for the LCF. It sought to highlight areas that have not kept up to date with international best practice, require some improvement or that could impact on ONS's reputation. The review set out 30 recommendations for LCF to be fit for purpose.

2.21 The team has taken forward most of the recommendations with no additional headcount being allocated to progress them, despite one of the NSQR recommendations being for ONS to 'allocate additional resources to the LCF research team to develop and implement a more robust questionnaire and testing process and ensure the questionnaire design keeps pace with ongoing changes in consumer spending/behaviour'. The remaining recommendations remain relevant to improving LCF. Work to address six of these was paused over the last year due to the COVID-19 pandemic.

2.22 The 2016 NSQR highlighted that many of ONS's international partners have been actively using administrative data to enhance the accuracy, quality and analytical capability of their household expenditure data. The LCF statistics team has previously engaged with the Eurostat Innovative Tools and Sources Taskforce and hopes to continue to engage with them and other international organisations, despite the UK having left the European Union.

2.23 While funding is a limitation to increasing the sample size, the NSQR recommended several alternatives that could be explored to improve the response rate and thus the achieved sample size. **ONS needs to invest time and resource to pursuing initiatives to improve the quality and robustness of LCF data. ONS should be open to creative solutions to improve the response rate, such as continuing exploring the use of different short and long form questionnaires/diary, alternative sampling strategies and linking with other data sources, rather than focusing only on increasing the existing sample.**

Investment in a longer-term solution for the LCF is urgently needed

2.24 The LCF statistics team has not been allocated the additional funding that was necessary to address its concerns about the sustainability of LCF in its current form. As part of bid for investment under ONS's spending review in 2019, the statistics team highlighted the inefficiency of the data processing systems as a limitation to the development of the quality and accuracy of LCF. The 2019 bid was built around the need to update the systems to enable implementation of COICOP 2018 and included implementation of machine learning methods. The spending review bid for 2020 was broader and included an option to develop a new expenditure survey and to deliver a short term boost to the LCF. The bids for investment in 2019 and 2020 were unsuccessful.

2.25 As part of the team's engagement with the Eurostat Innovative Tools and Sources Taskforce, the team received funding through a Eurostat Grant project to commission a proof of concept looking at using machine learning to automatically categorise receipt information. This work was taken forward by the Data Science Campus. This work did not gain momentum due to the COVID-19 pandemic and further funding was required to progress the project from the proof of concept stage.

2.26 ONS is currently working on transforming its data on the distribution of household finances, as part of its wider transformation programme. The LCF fits within the Household Finance Survey (HFS) model and transformation plans, which has involved harmonising questionnaire content in the LCF and the Survey of Living Conditions to create a household income dataset with a larger combined sample. ONS has invested heavily in developing the HFS. As we highlighted in our review of income-based poverty statistics, the development of HFS provides an opportunity for ONS and the Department for Work and Pensions to explore the feasibility of consolidating their existing surveys to create a single data source on household incomes.

2.27 As the focus for transforming expenditure data has been through HFS, the transformation of specific inputs into HFS has been of a lower priority. A large-scale transformation of the LCF would be difficult due to the wide range of stakeholders and dependencies it has. However, the LCF is unique and needs investment in its own right, regardless of the wider transformation work. As well as developing alternative approaches to collecting data, ONS needs to make more-urgent improvements to specific parts of the LCF.

2.28 As well as the creation of HFS, ONS has been pushing for greater use of administrative data and has considered the use of credit card and scanner data to enhance the survey data. These types of data were used by ONS in the pandemic, including as part of its faster indicator series, when the LCF was not available for a short period. The statistics team is also considering the use of loyalty card data. The statistics team told us that the University of Bristol is carrying out work to explore the willingness of individuals and organisations to let research agencies have access to these data sources.

2.29 Our review of international activities revealed a high level of co-operation between National Statistical Institutes in the development of their household surveys, including for example, co-operation between the US and Canada on recall periods

(see annex). It is worth noting that several countries including Ireland, Canada and the Netherlands have worked closely with UK staff on the implementation of commercial recognition software, which has yet to be used by the ONS. These countries' engagement with the UK highlights the expertise and international standing of UK staff, and due to under-investment, the missed opportunities to develop the accuracy and quality of LCF data. ONS should look to determine the extent to which solutions which have been adopted internationally could be applied to a UK context.

2.30 The lack of progress in the use of alternative and administrative data sources has impacted on the quality, accuracy, and international comparability of the surveys data, a perspective which is seen as important to users to gauge the impact of Brexit and the pandemic on UK households. **Given the strategic importance and profile of expenditure data with internal and external stakeholders, ONS should address this under investment in LCF systems and development work as a matter of urgency.**

The LCF improvement project should consider wider uses of LCF data beyond RPI

2.31 In March 2021, ONS launched an internal LCF and RPI Improvement project. The main aim of the project is to reduce the risk of further errors in the RPI arising from problems with the quality of LCF data. Achievement of this aim will be measured through the project's strategic goals, including increased confidence in the quality of LCF data output among stakeholders, fewer future errors, and enhanced quality assurance. While we welcome the initiative, we consider there is a wider need to review the LCF beyond its relationship with the RPI.

2.32 The project is comprised of four main workstreams comprising:

- LCF Discovery – Covering a review of the data quality assurance processes for the LCF, Prices and Household Final Consumption Expenditure, and including a review of the of impact of the 2020/21 LCF Questionnaire changes on the processing of LCF data.
- Aggregation of LCF data – This workstream will focus on the extent to which downstream data processing risks can be ameliorated by re-positioning the aggregation of LCF data from the Social Surveys division to the Economic Statistics Group and using a strategic coding language (R, Python) to perform the aggregation.
- Review of the consumer prices quality assurance processes. The workstream will also examine the possibilities of enhanced engagement with data suppliers to minimise the possibilities of errors going undetected in downstream processing.
- The fourth element of the project, not directly related to the LCF, will focus on the RPI revisions policy, and will consider whether small errors should be corrected as part of a revisions policy.

2.33 In carrying out our review, we considered our findings in the context of the improvement project, to identify whether the areas we have highlighted for improvement are covered by the project. We noted earlier in this report that LCF

data are used by a range of ONS' internal and external users. The focus of ONS' review, however, is the interaction between the LCF and the RPI. In the interests of promoting and enhancing the public value of official statistics, ONS should consider extending the scope of its project work to include input from some of its key external users, such as the Scottish Government, where additional intelligence could be gathered on the use and issues faced by the government in its use of LCF data.

2.34 OSR would also encourage ONS to consider the management of risks throughout the end-to-end production process as part of the LCF projects medium term work and ambitions. We note that the focus is on downstream data processing, despite the fact that often the biggest risks for quality come at the beginning of the production process. For example, OSR's work on strengthening the quality of HMRC's Official Statistics, highlighted the data quality challenges that statistical producers face when being supplied with data from external bodies. In the work with HMRC, OSR advocated the use of its Quality Assurance of Administrative Data Framework as a tool for managing these upstream challenges. Whilst the framework is designed for managing risks arising from administrative datasets, the principles can also be applied to survey data.

2.35 As part of the improvement project, ONS should also consider our recommendation to determine a longer-term solution for the LCF which draws on international best practice and wider transformation initiatives. We would encourage ONS to consider whether the work to move the aggregation of LCF data to a strategic coding language provides an opportunity to build in Reproducible Analytical Pipeline principles, which would free up resource in the long term to allow the statistics team more room to carry out development work.

Requirements and next steps

3.1 Despite the findings of the 2016 NSQR, investment and the uniqueness of the LCF production systems has not been a priority for ONS. This under-investment has contributed significantly to the data quality issues faced over the last three years and prevented the LCF team from having the opportunity to develop their work to improve the accuracy of expenditure data and reduce burden on already unwilling participants.

3.2 We have identified several ways the LCF needs to be improved to meet users' needs and to comply with the highest standards of the Code. Urgently fulfilling the requirements of this assessment is necessary to ensure that the LCF and its outputs continue to be fit for purpose. In order to retain the National Statistics status for *Family Spending in the UK*, we require ONS to:

a. Demonstrate a positive direction of travel by making some short-term gains by the end of 2021 as follows:

   i. ONS needs to take remedial action to improve the stability of the existing LCF processing system and to develop a new system which meets the needs of users and the staff running the systems.

   ii. ONS should enhance its understanding of the value of the statistics by improving its engagement with users, within and outside ONS, to capture a wide range of views and use these to drive its priorities for development. ONS should reflect on the Government Statistical Service's User Engagement Strategy for Statistics to help determine the best methods for engaging with users.

   iii. ONS should provide a mechanism and relevant access for other teams in ONS who make use of LCF data to be able to contribute to the quality assurance of the data.

b. Publish a plan which includes specific actions, deliverables and a timetable by the end of March 2022, that explains how it will address the following strategic improvements:

   i. ONS needs to develop a solution to address user need for more-granular breakdowns of data, so that the devolved administrations and other key users can use the statistics in the ways that they need to for the public good.

   ii. ONS needs to invest time and resource to pursuing initiatives to improve the quality and robustness of LCF data. ONS should be open to creative solutions to improve the response rate, such as continuing exploring the use of different short and long form questionnaires/diary, alternative sampling strategies and linking with other data sources, rather than focusing only on increasing the existing sample.

3.3 We have also highlighted several considerations for ONS to reflect on as part of its LCF and RPI improvement project.

a. ONS should consider extending the scope of its project work to include input from some of its key external users, such as those in the devolved

administrations, where additional intelligence could be gathered on the use and issues faced by the government in its use of LCF data.

b. ONS should consider the management of risks throughout the end-to-end production process as part of the LCF projects medium term work and ambitions.

c. ONS should determine a longer-term solution for the LCF which draws on a broader base of data, international best practice and wider transformation initiatives.

3.4 We expect ONS to report back to us every quarter, starting from the end of September 2021, demonstrating its progress against these requirements. We will review the National Statistics status of *Family Spending in the UK* at each of these points.

Annex: Case studies of international work

Canada

A.1 Canada's Survey of Household Spending (SHS) collects detailed information on household spending and the annual income of household members. The survey is conducted every two years and data are collected on a continuous basis throughout the survey reference year. Participants can complete an online questionnaire to record regular expenditures on items such as rent and electricity and to record less-frequent expenditures on larger items such as furniture. For regular expenditures, the amount of the last payment and the period it covers are collected, whilst for larger expenditures the recall periods can vary, and include the last two weeks, or three and twelve months. The flexible use of recall periods builds on the approach taken by the United States of America, which is detailed below. The National Statistics Institutes in Canada and the United States of America worked together to determine how the findings from the Consumer Expenditure Survey in the United States could be applied to the SHS.

A.2 Participants are also asked to keep a paper-based expenditure diary for a specified period (one week for household members living in the provinces and for a two-week period for those living in territorial capitals). Respondents are asked to record all their expenditures, save for a few items including rent, utility payments and property and vehicle purchases. Where respondents provide receipts to Statistics Canada, these are scanned and assigned one of the available 650 expenditure classification codes.

A.3 Linking data from the SHS with data from the Canada Revenue Agency, enables Statistics Canada to produce estimates of household income. Respondents are asked for their consent prior to these the linking of these two sets of data and, in the event, individuals do not agree, estimates are imputed.

United States of America

A.4 Estimates of household expenditure are produced by the US Bureau of Labor Statistics (BLS) through its Consumer Expenditure Survey (CES). As in Canada, the CES provides information on American households' income and expenditures. The BLS publishes estimates of consumer expenditure twice a year. Data are reported by income levels and household characteristics and public-use microdata files are published to assist users and researchers seeking to analyse data in more depth.

A.5 The CES consists of two separate surveys: the Interview and the Diary survey. The Quarterly Interview Survey is designed to collect data on large and recurring expenditures that consumers can be expected to recall for a period of three months or longer such as rent and utilities, while the Diary Survey is designed to collect data on small, frequently purchased items including most food and clothing. The move from an annual recall to quarterly recall in the Interview survey, and the daily recording of expenditures in the Diary survey, have improved the timeliness of these data and allowed for more detailed information on spending patterns.

A.6 In February 2021 the BLS published a paper detailing its plans for the evaluation and use of alternative data in the CES. The factors driving the consideration of alternative data, include declining response rates, the length and complexity of the existing CES and increasing data collection costs.

A.7 The paper responded to the findings of a Committee on National Statistics report entitled Measuring What We Spend: Toward a New Consumer Expenditure Survey, which recommended that the BLS consider linking CES information to, for example, Internal Revenue Service data to create a robust picture of how households expenditures vary with income over time. The Committee also requested that "BLS should pursue a long-term research agenda that integrates new technology and administrative data sources as part of a continuous process improvement".

A.8 In its paper, the BLS's initial response to these requirements, has been to consider the different sources of administrative data that could be used in the CES, including administrative records held by government entities for program administration, regulation, or law enforcement, consolidated data from private sector organisations, such as credit card companies, and operational data from routine agency activities such as the Statistics of Income program of the Internal Revenue Service.

A.9 The paper develops to examine the statistical profile of these data sources including their relevance, timing, representativeness, access, and conceptual differences and to discuss their potential for linking these sources to complement or substitute CES data.