UK Statistics Authority

Government Buildings
Cardiff Road
Newport
NP10 8XG

Adeiladau'r Llywodraeth
Heol Caerdydd
Casnewydd
NP10 8XG

E-mail: national.statistician@statistics.gov.uk

www.statisticsauthority.gov.uk

Emma Rourke | Acting National Statistician

Simon Hoare MP
Chair, Public Administration and Constitutional Affairs Committee
House of Commons
London
SW1A 0AA

21 August 2025

Dear Mr Hoare,

Following evidence I gave to your Committee in July, and a subsequent request for supplementary evidence, please find additional information on the Transformed Labour Force Survey (TLFS), Planning & Portfolio management, and the Integrated Data Service (IDS) enclosed.

Please do let me know if I can be of any further assistance.

Yours sincerely,

Emma Rourke

TLFS

Can you please provide the initial project documentation for TLFS?

The TLFS was created from a series of legacy research and delivery projects over many years. The complexity of this evolution underpins some of the challenges the project has faced. The timeline of the TLFS is enclosed at Annex A. The first prototype of this survey was called the Labour Market Survey (LMS), which was later renamed the TLFS.

The high-level design for the TLFS was originally based on design concepts developed within the Data Collection Transformation Programme, which were presented to and endorsed by the Office for National Statistics (ONS) National Statistics Executive Group (NSEG) in May 2017 as part of the solution to falling Labour Force Survey (LFS) response rates. This paper and its annexes are enclosed at Annex B.

This design was taken forward for development within the Integrated Population and Characteristics Survey (IPACS) project in June 2019 under the Census and Data Collection Transformation Programme (CDCTP). A paper on the development of the IPACS was presented to the Methodological Assurance Review Panel in June 2019 and is enclosed at Annex C.

The fundamental features of the IPACS design were:

- An online first survey.
- A respondent centred design approach which engaged respondents in its creation and minimised respondent burden.
- An integrated design – which brought together the existing multiple disparate surveys across the ONS into a single master survey with accompanying topic-based follow-up modules (i.e. labour market, household expenditure etc). See Figure 1 in Annex C.
- The significant use of administrative data: to inform both survey sampling, and to enable surveys to be significantly shortened through the replacement of questions on data already held by government, such as house valuation, council tax, income etc. See Figure 1 in Annex C.

In developing and implementing this original survey design, the TLFS lessons learnt review, published in December 2024[1], outlines key issues that were encountered: *"The original IPACS design was for a modular system with a combination of surveys and administrative data to meet the wide range of user requirements. With the lack of available administrative data, organisational priorities in delivering Census and the impact of the pandemic, TLFS subsequently became the de facto solution for meeting all user needs rather than just the core labour market."*

[1] https://www.ons.gov.uk/news/statementsandletters/transformedlabourforcesurveyalessonslearntreview

This led to the loss of the integrated design approach and the loss of administrative data to shorten the survey. Without administrative data to replace survey questions, the LMS was longer than originally intended in the concept but still aimed to be substantially shorter than the LFS (200 to 300 variables on the LMS vs 604 variables on the LFS).

However, we received demand from stakeholders to continue to collect variables to meet their needs. This feedback meant that options to reduce the length of the survey were minimal given the limited time remaining before the CDCTP programme and funding ended and the lack of alternative online surveys to house the questions. The fallback position was to transition remaining question blocks on the LFS relatively rapidly onto the TLFS. This became the final design of the first iteration of the TLFS which went live in October 2023.

In 2024, with an unacceptable level of missingness and drop-out on the survey evident in six months of testing, the UK Statistics Authority Board formally endorsed the development and testing of a significantly shorter TLFS labour market "Core" survey. The revised survey design was approved by the Board in March 2025, and the shortened TLFS survey went live on 7 July 2025 (with other design improvements due to be implemented over the next 6 months).

To what extent were stakeholders engaged at the start of the process?

During 2016-18, as the earliest design research was completed, existing LFS stakeholders across government were kept up to date with regular meetings. This included detailed justifications for conducting the research and implications for the overall design of the new survey. This early engagement highlighted that this was a new transformed survey rather than an updated version of the current LFS for online use. Findings from the research were also shared widely via social research industry seminars and conferences and formally published at a later date[2].

In 2018-19, as part of the initial IPACS design and development, an extensive stakeholder engagement exercise took place with LFS users across central government department, including the Bank of England, HM Treasury and local government interest groups. Requirements for a transformed survey were gathered via a template which was completed by all major LFS stakeholders across government. They were asked which specific LFS variables they currently used, (and hence needed to be included in the transformed survey) what outputs these fed into, and what other survey design requirements they had (e.g. longitudinal data).

This user engagement at the start of the process was maintained at a working level throughout the life of the project. This included continued regular briefings, published guides and information. For example, in December 2023 and January 2024, as the

[2] https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/labourmarketsurveyresearchandresultsoverview

TLFS parallel run was initiated in full, briefings and updates took place with over a hundred users of the LFS across government.

In light of the substantial challenges that labour market statistics faced, and the considerable impact that this was having on key users, the overall approach to stakeholder and user engagement with labour market statistics was significantly improved in 2024. The new approach also looked to address identified limitations with how critical users had been engaged with the TLFS to date.

The key elements of the new approach included:

- A new Labour Market Technical Group chaired at a senior level and meeting monthly, comprising representatives from HMT, the Bank of England, Office for Budget Responsibility (OBR), Department for Work and Pensions (DWP) and Department for Business and Trade (DBT). This provides a space for robust technical dialogue, constructive challenge and meaningful engagement.
- A new independent Stakeholder Advisory Panel chaired by Professor Jonathan Portes with representatives from Government, Academia and Think Tanks. This provides independent advice on the production, publication, uses and applications of labour market statistics and their technical aspects.
- A commitment to regular external updates that combined updates on LFS and TLFS and addressed recommendations from the Office for Statistics Regulation (OSR).
- New opportunities for a wider set of users to engage including public webinars and the UK Statistics Assembly.
- A Household, Socioeconomic and Local Technical Group, established in 2025, that convenes monthly to inform and assure our approach to data collection, requirements, prioritisation and engagement for the wider household and socioeconomic data collected by the TLFS. It has a diverse membership, including users from the devolved governments, central and local government, and think tanks.

This engagement approach was integral to informing, assuring and endorsing the improved TLFS design approved by the Board in March 2025, and will continue to be critical as we move towards transition from the LFS to TLFS.

Who was the Senior Responsible Officer (SRO) for the TLFS?

As detailed in Annex A, the TLFS as a programme is a relatively recent creation. The relevant SROs who have contributed to the history of the TLFS across the accompanying survey development and statistical output development projects are as follows.

<table>
<tr><th>Year</th><th>Survey and Processing Development</th><th>Statistical Output Development</th></tr>
<tr><td>2016</td><td rowspan="3">Data Collection Transformation Programme (DCTP) – Pete Benton, Director of Data Collection</td><td rowspan="3"></td></tr>
<tr><td>2017</td></tr>
<tr><td>2018</td></tr>
<tr><td>2019</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>2020</td></tr>
<tr><td>2021</td><td rowspan="2">Census and Data Collection Transformation Programme (CDCTP) – Iain Bell, Director General and Deputy National Statistician (Population and Public Policy)</td><td>Donna Leong, Director of Economic Statistics Change and SRO of the Ambitious, Radical, Inclusive Economic Statistics (ARIES) Programme</td></tr>
<tr><td>2022</td><td rowspan="3">Census and Data Collection Transformation Programme (CDCTP) – After Iain Bell’s departure, Pete Benton briefly stepped in to the SRO role before Ruth Studley was recruited as Director of Population Transformation.
Ruth delegated to Alex Lambert, Director of Survey Operations.</td><td rowspan="3">Jason Zawadzki, Director of Economic Statistics Change and SRO of the ARIES Programme</td></tr>
<tr><td>2023 – Apr 24</td></tr>
<tr><td>Apr 2024 – Apr 25</td><td>Survey Enabling Programme – Philippa Bonay, Director of Operations -
Philippa delegated to Alex Lambert, Director of Social Surveys</td></tr>
<tr><td>Apr 2025 onwards</td><td colspan="2">TLFS Programme – Alex Lambert, Director of Social Surveys</td></tr>
</table>

<u>Programme and Portfolio office</u>

Can you set out in writing what the responsibilities of the programme and portfolio office are (and, if relevant, whether the role of the office has changed over time)?

Can you clarify who has filled this post since 2020?

The roles and responsibilities outlined should be seen in the context of the hierarchy of roles in Annex D. The Portfolio Management team in the ONS supports the portfolio on behalf of the ONS Executive Committee [ExCo]. Prior to a streamlining of governance structures in May 2025, the roles and responsibilities ascribed to ExCo were carried out by a sub-committee named the Portfolio Investment Committee

[PIC] which reported to ExCo. These responsibilities have now been absorbed into ExCo.

The ONS portfolio includes significant change programmes required to deliver the UKSA Strategy and ONS Priority Outcomes. The team is part of the Planning and Portfolio Management Division within the Finance, Planning and Performance Directorate. From 2020 – April 2025 Megan Cooper was the Deputy Director for this division; at present James O'Brien occupies the post.

The Portfolio Management team monitors and analyses the portfolio and its constituent programmes on behalf of ExCo, providing regular updates and insights with respect to six key performance indicators: milestones, resource, finance, risks and issues, dependencies, and benefits. As well as regular reporting on the health of the portfolio, the Portfolio Management team offers the following services to Programmes, Projects and Project Management Offices across the ONS:

- Portfolio Assurance – the Portfolio Management team provide second line assurance to SROs on the portfolio via regular monitoring, and an independent perspective on programme performance to ExCo. The team provides expert advice to governance bodies, SROs, and project delivery professionals on governance and assurance, in line with government Project Delivery standards. The portfolio management team also carries out critical friend reviews on behalf of SROs and programme health checks for all programmes on the portfolio (the latter being mandated in 2024 following an internal audit recommendation). Programme Lifecycle Management has been mandated since 2023, and since then three non-Government Major Projects Portfolio (GMPP) programmes under the portfolio have undergone gateway reviews. The Portfolio Assurance Team is actively involved in the planning of National Infrastructure and Service Transformation Authority (NISTA) assurance reviews, as well as coordinating assurance support for wider Government departments.
- Portfolio Governance and Risk - the Portfolio Management team reports portfolio-level risks on behalf of ExCo, identifying and sharing emerging themes across the portfolio for insight and awareness. The team also provides risk support and guidance directly to programmes including facilitating risk identification workshops, reviewing existing risk profiles and governance structures, and provision of risk and issue templates for board packs and highlight reports.
- Business Case Management - the Portfolio Management team coordinates key-holder and wider organisational assurance of business cases on behalf of ExCo to support investment decisions. Through a sub-group of ExCo (Investment and Delivery Assurance Group [IDAG]), the team facilitates awareness and encourages challenge on deliverability and value for money of

investments. They also provide advice and guidance to those developing business cases.

- Benefit Management - the Portfolio Management team provides guidance, advice, and leadership on benefits management approach.
- Programme and Project Management lifecycle management - the Portfolio Management team provides advice, guidance and templates to the programmes related to all aspects of the project and programme lifecycle.

The ONS implements a tiered approach to the portfolio based on complexity and strategic value that determines the optimum governance and controls for delivering change successfully, consistent with HM Government's Teal Book guidance. To be on-boarded onto the ONS portfolio, change activities must have an approved business case that sets out the strategic value and alignment to the ONS Priority Outcomes. Business cases are expected to include a Risk Potential Assessment setting out the level of risk associated with the change which contributes to the decision to on-board the programme to the ONS portfolio. As part of the ONS portfolio, programmes/projects are made more visible to executive governance committees and the Authority Board via monthly reporting of key management information and insights. They are also provided with additional support from the portfolio team when it comes to assurance.

Aside from its primary focus supporting the ONS portfolio, the portfolio management team also provides some support to projects and programmes outside of the portfolio, providing tools and templates to support the complete programme/project lifecycle, signposting directorates to support available from start to finish of their programme journey. The function also undertakes an annual maturity assessment to support continuous improvement in line with the Project Delivery Functional Standard and Teal Book. This assessment is the basis for an action plan that forms the team's continuous improvement goals for the year.

IDS

Can you set out costs of the IDS since 2020 in writing?

The Integrated Data Service (IDS) was being delivered by the Integrated Data Programme (IDP), a cross-government programme funded by HM Treasury through a ring-fenced budget. For the financial years 2020/21 to 2024/25 inclusive, the total expenditure recorded against this ring-fenced budget was approximately £223.7million. (This figure was rounded to £224 million and summarised as 'expenditure to date' when provided to the Committee as oral evidence on 8 July 2025.) The annual breakdown is as follows:

For the financial year 2020/21, the total expenditure of the IDS/IDP ring-fence was approximately £15.5 million.

For the financial year 2021/22, the total expenditure of the IDS/IDP ring-fence was approximately £38.8 million.
For the financial year 2022/23, the total expenditure of the IDS/IDP ring-fence was approximately £56 million.
For the financial year 2023/24, the total expenditure of the IDS/IDP ring-fence was approximately £59.1 million.
For the financial year 2024/25, the total expenditure of the IDS/IDP ring-fence was approximately £54.3 million.

Pete Benton was appointed SRO of this programme by ONS and the (then) IPA in 2024, but a separate DG for the IDS was also appointed. Can you please clarify who is responsible for what?

The decisions for these appointments were made by the former National Statistician, Sir Ian Diamond.

Nigel Green was appointed to undertake a specific IDP role on a two day a week contract, adding programme delivery leadership. Nigel has a track record of successful major programme delivery from elsewhere in government with a digital background. Pete Benton's background as a statistician allowed him to lead on developing the service in a way that could meet the analytical demands of users.

Pete and Nigel's collaboration is best described as a shared leadership model, with Pete focusing on strategy and stakeholder engagement, and Nigel driving delivery and programme execution.

Nigel Green could not be SRO for the programme as Infrastructure and Projects Authority (IPA)/National Infrastructure and Service Transformation Authority (NISTA) require that this role only be undertaken by an appointed Civil Servant, and not by those in a contractor role. In addition, the role that Pete Benton was asked to undertake (to cover for a Director General's sick leave) was broader than just the IDP, with leadership responsibilities across the Data Capability Group. The Data Capability Group includes the IDP and IDS as well as the Digital Services, and the Data Growth & Operations directorates.

Can you confirm if there were any major data programs which now will not be able to proceed because of the closure of the IDS program?

While the ONS does not use the term 'major data programme' in relation to the IDS analytical project pipeline, the pipeline of projects has been assessed on their alignment to ONS priorities and their potential impact to Government Missions. This has resulted in a number of IDS project applications that do not align to ONS priorities being declined, including seven project applications that could support government missions on employment, health, crime and economy. Where we deem a project to have high potential impact to Government Missions these will be

considered on a case-by-case basis by ExCo as part of our exemption process, which is currently in development.

Linked data represents a highly valuable and underutilised asset to government. Secure access to safely linked data, as enabled by the IDS, creates new opportunities for highly impactful analysis, unlocking the insights needed to shape policy and lead to better outcomes for citizens.

The IDS has responded to government demand and focussed on linkages that unlock important policy questions, such as the linkages between health and labour market data; the linkage between properties (including energy usage) and individuals; and the linkage of business data, including links to employees. The IDS was previously focused on supporting analytic projects that align to the government's central missions, such as analysis of healthcare interventions and labour market activity, and research into attributes and geographic distributions of people and households living in poverty.

Restricting access to the linked data / data linkage assets will limit the potential of this valuable government resource. The decision to focus the assets on ONS priorities, where they can contribute to our core statistics, means that the IDS is only accepting new applications for external use by strict exception.

The ONS is working closely, and on a case-by-case basis with its partners in academia and across government to fully understand and mitigate the impact of restricted access. In particular, the ONS is:

- Working with Administrative Data Research UK (ADR UK) to support the continued preparation of research-ready data, access to which could be provisioned to academic researchers via the Secure Research Service;
- Working with DSIT to explore options for the work of the IDS to be integrated into the National Data Library's Kickstarter Programme; and
- Developing an exemption process, whereby access to linked data already held by ONS could be provided to external analysts in limited instances - where analysis is assessed to be of high value to government; with an underpinning cost-recovery model; and where this activity does not distract from the ONS' core organisational priorities.

Office for National Statistics
August 2025

Annex A: TLFS timeline

<table>
<tr><th>Year</th><th>Survey and Processing Development</th><th>Statistical Output Development</th></tr>
<tr><td>2016</td><td rowspan="3">Original design, stakeholder engagement and research work under the Data Collection Transformation Programme (DCTP)</td><td rowspan="4"></td></tr>
<tr><td>2017</td></tr>
<tr><td>2018</td></tr>
<tr><td>2019</td><td>Initial Integrated Population and Characteristics Survey (IPACS) design and development within the Census and Data Collection Transformation Programme (CDCTP). Renaming of IPACS into the Labour Market Survey (LMS).</td></tr>
<tr><td>2020</td><td>Launch of the partially completed LMS survey during the pandemic as the Labour Force Survey (LFS) response rates dropped significantly due to lockdown. While the LMS was launched in its half-finished state, further development was deprioritised due to Census 2021 and the Covid Infection Survey.</td><td></td></tr>
<tr><td>2021</td><td rowspan="3">Re-start and development of the LMS post Census 2021. Remaining survey questions were added to the online version and telephone and ‘knock-to-nudge’ modes added. Parallel run against LFS starts October 2023.</td><td rowspan="4">Creation of the accompanying Labour Market Transformation project within the Ambitious, Radical, Inclusive Economic Statistics (ARIES) Programme within ESEG to manage the transition of labour market outputs from LFS to LMS.
LFS and TLFS quality compared in April 2024 – further work required due to quality issues.</td></tr>
<tr><td>2022</td></tr>
<tr><td>2023</td></tr>
<tr><td>2024</td><td>End of CDCTP programme, TLFS project moved to a new Survey Enabling Programme.</td></tr>
<tr><td>2025</td><td colspan="2">Development of shorter TLFS completed and formal decision in March 2025 to create a single TLFS programme to implement the improved TLFS design. The new programme encompasses previous work on TLFS survey and processing design and Labour Market Transformation.</td></tr>
</table>

UK STATISTICS AUTHORITY

NATIONAL STATISTICS EXECUTIVE GROUP

NSEG(17)32

Labour Force Survey

Purpose

1. This requested paper provides commentary on current Labour Force Survey (LFS) response rates and a comprehensive discussion of the short, medium and long term actions to address declining response and to investigate non-response bias. The paper presents the journey towards the long term strategic solution of survey and non-survey data source integration and statistical redesign.

Recommendations

2. Actions for NSEG are set out within the paper but, primarily, NSEG are invited to*:*

   i. note current response rates and determining factors affecting performance (section 5);
   ii. note the expected response rate improvement from funding now agreed for incentives (10);
   iii. agree the package of short term measures to improve response i.e. recruit beyond current controls, prioritise LFS and LFS reissues above other surveys (13);
   iv. agree prioritisation of field contractual changes within ONS workforce transformation (15);
   v. note the impact of new technology and geography on more effective fieldwork management (16-17);
   vi. agree the possible approach to testing a shortened LFS questionnaire ahead of DCTP milestones (20);
   vii. confirm the position on statistical discontinuities likely to arise (21);
   viii. note early findings from the non-response analysis and the approach to the managing areas for improvement (22-27); and
   ix. agree the commissioning of a think piece to develop the administrative data first approach (30).

Background

3. Previous papers have discussed declining household survey response, ongoing remedial action to tackle the drivers of non-response and the ongoing vigilance and quality assurance of LFS data within the monthly publication cycle. The impact of survey non-response bias in key labour market outputs is the critical concern.

4. Households are selected to take part in the LFS over five successive quarterly waves. In October and November 2016, as a result of incentive trials and a near optimum field capacity, LFS Wave 1 response rates met the target for two successive months without further decline for the first time since 2014. Response rate decline in December was expected (due to non-contact and a reduction in interviewing hours) but so far in 2017 LFS Wave 1 has disappointingly remained below the target level.

Discussion

Current performance and short term operational actions (next 1-2 months)

5. **Annexes A and B** show LFS Wave 1 response over the last 10 years and the LFS 12 month response rate performance respectively. **Annex C** shows the UK average for a range of household surveys from multiple organisations. Refusal to participate remains an ongoing issue however the current lower response is largely being driven by reduced field capacity. The pace of recruitment is not currently keeping up with turnover. At the time of writing we are 40 interviewers below our current optimum level of 720 (c.6 per cent short). In February we were 60 (8 per cent) short. Whilst 30 joiners are currently being recruited there will have been further departures. Fluctuations in capacity are normal and a key reason for the annualised hour employment contract. Our mitigation is

to work in excess of contracted hours. However, the situation has been exacerbated by a significant, albeit planned, increase in required capacity with the launch of the Child Mental Health Survey and the reintroduction of the EU Survey of Income & Living Conditions (EUSILC) Wave 1. The end result is work is spread thinly.

6. Current resourcing controls restrict recruitment to an agreed level (i.e. 720 interviewers). However because of the volume of turnover we are not reaching this level. We wish to recruit beyond our resource controls to provide greater contingency and anticipate turnover (e.g. if shortfall is 40 we will recruit 70). **NSEG are asked to agree this as a package of short term measures in 13. below.**

7. Reissues are a key aspect of survey operations. Sampled addresses where no contact has been made or there has not been an outright refusal will be reissued to the same or another interviewer; or to another collection mode. Reissues are crucial in boosting response rates. However when there are staff shortages the volume of re-issues undertaken will reduce.

8. A formalised survey priority order was discontinued several years ago. As a result, Interviewer Managers are making local decisions to cover work. We propose to reinstate a survey priority order immediately: LFS and LFS reissues should be the top priority. The rest of the order and resulting stakeholder management actions would be agreed by the Data Collection Management Board. **NSEG are asked to agree this as a package of short term measures in 13. below.**

9. Around 15 per cent of the selected LFS sample is allocated to telephone collection at Wave 1. Commercial databases are used to match telephone numbers to sampled addresses. When this cost saving initiative was introduced in 2010 the telephone response rate was 5 percentage points lower than face to face collection. A deep-dive of recent performance highlights the gap has worsened to 12 percentage points i.e. the current telephone LFS Wave 1 response rate is 43 per cent - or 13 percentage points below the target. Whilst telephone interviewing is cheaper than face to face; refusal and non-contact rates are higher and have increased. An option would be to reverse this initiative which increases the required field capacity and presents a net £250.000 pressure but it may improve the overall LFS Wave 1 response rate by 1 percentage point. There may also be statistical quality benefits from increasing coverage of people who refuse or are non-contactable by telephone. **NSEG are asked to agree this as a package of short term measures in 13. below.**

10. The incentive trial, reported to NSEG previously, continues to have a positive overall effect and has been tested on around a fifth of the sample. Up to the end of March response rates within the incentivised sample (c. 16,000 eligible addresses) continue to exceed the control group (c. 27,000 eligible addresses) by 3.3 percentage points overall. Some local area impacts have been greater. The incentive has also increased the participation of some under-represented groups (e.g. minority ethnic groups, students and the older unemployed) and reduced the average number of calls needed to make contact. Portfolio Committee have recently approved a £600k package of funding for full roll out on LFS and this will occur from June.

11. We have commissioned the Behavioural Insights Team (BIT) to experiment with behavioural science techniques through randomised control trials of new respondent materials within the LFS and the Census Test. Initial findings show a potentially greater impact in the Census Test than in the LFS trial where impact has been negligible.

12. Social Survey Division exerts continual effort to maintain and improve response rate performance. Recent examples include the review and revision of telephone interview calling patterns and telephone unit staffing and an overhaul and roll out of ‘Achieving Cooperation Training’ to the field force.

13. In light of the above we expect the following package of short term operational measures to deliver response rate improvement:

Initiative	Expected Improvement	Cost	Status
Recruit beyond controls to maintain field force numbers	Meet target	n/a	NSEG asked to approve
Reinstate a survey priority order	Meet target	n/a	NSEG asked to approve
Cease telephone interviewing LFS Wave 1	1% point uplift	£250k	NSEG asked to support
Full roll out of £10 incentive	3% point uplift	£600k	NSEG asked to note. Funding approved by PC and will start in June

Medium term actions (within next 6 months)

14. A contributing factor to the decline in social survey response rates has been the ONS field force model. For example, the proportion of face to face calls made after 6pm has declined in recent months alongside an ongoing low level of weekend working (less than 4 per cent of calls). The field force modernisation strand of the Data Collection Transformation Programme (DCTP) is seeking to address this.

15. Existing employment contracts for the face to face field force are vague and only provide an expectation to be available to work evenings and weekends. We will continue to reinforce this but also wish to change the terms and conditions of employment through variations of contract. This will specify more precisely the calling pattern required and is intended to address the problem of ineffective and inefficient interviewer behaviour. Alongside we are also looking to introduce an element of performance related pay (non-consolidated bonuses) that will provide an interviewer with an incentive to work differently. There are competing HR priorities and although we have now funded and recruited our own HR specialist this may be able to be delivered sooner if it was driven from within central HR. **NSEG are asked to agree this prioritisation.**

16. New technology is an important enabler of change. At the present time fieldwork allocation is a paper-based and manually intensive activity. There is no real time information, no transparency of local manager decisions and as workloads are posted out to interviewers there is limited flexibility to re-allocate work (e.g. if an interviewer is sick). The use of a fieldwork management tool within the 2017 Census Test will not deliver a tool for re-use in household surveys but has proven the viability of such a solution. A discovery to find a solution for wider re-use has commenced. This will allow better management of interviewer resource. **NSEG are asked to note.**

17. The LFS fieldwork geography which divides the sample into operationally manageable and statistically robust fieldwork areas (called ‘stints’) is inefficient and still largely based on 1991 Census enumeration areas. Although light touch modifications were made in 2004 the areas are no longer of equal population or household size and have undergone many other infrastructural changes making capacity planning difficult. A project to modernise this (the LFS re-stint) is underway but is around six months behind schedule. Although approval was given by the Design Authority in April 2016 the required resource in ONS Geography was not finally in place until early 2017. The Discovery now underway will also assess the changes required to the existing IT systems. Further support from Methodology and DST is required to deliver this in 2017 and has been built into our 2017/18 work request. The priority of this must be maintained. Data Collection Directorate’s efficiency target already includes cash savings from this project. **NSEG are asked to note.**

18. The length of the LFS questionnaire is a longstanding issue. The current average interview length at Wave 1 is 37 minutes per household; 25 minutes at Waves 2-5.

Approximately half of the questionnaire is labour market related with the rest being a mix of wider Government Statistical Service (GSS) and Eurostat requirements. Existing plans for 2018 are already in place to reduce this by c. 5 minutes. The impact of a shorter interview length on Wave 1 response is debateable but our deep dive highlights consent for further participation in LFS Waves 2-5 is declining. This is reflected in **Annex B** within the All Waves refusal rate and could be caused by a negative Wave 1 experience.

19. Current DCTP plans deliver a shorter labour market focused questionnaire as part of an integrated, modular and redesigned survey system in 2020. Implementing a shorter questionnaire sooner presents considerable challenges. Complex changes would be required to existing IT systems since new platforms will not be ready and the questionnaire redesign is currently focused on online self-completion. Implementing a new, shorter, labour market focused questionnaire ahead of current DCTP milestones would mean the removal of key question topics such as well-being, sexual identity, veterans and training/qualifications from at least the Wave 1 questionnaire. This is likely to be unhelpful and difficult from a wider GSS user perspective as no other sources exist.

20. However, we are keen to test the potential impact of a shorter questionnaire and are considering options for a pilot within existing business as usual operations, using existing systems with minimum modification within the next 6 months. The most likely, and affordable, option is a modest pilot of a few hundred addresses. The outcome can be used to inform discussions with users and future choices. **NSEG are asked to agree this approach.**

21. If a new shorter questionnaire can be delivered ahead of current DCTP milestones then when combined with the LFS re-stint project and the eventual introduction of an online mode there are likely to be three or more significant discontinuities in the labour market statistical series over the next three years. So long as discontinuities can be explained we understand the steer is to be bold. **NSEG are asked to confirm this position.**

Investigating non-response bias (next 6 months)

22. The key concern of declining survey response is non-response bias. Previous papers have described the results of 2011 Census-based non-response analysis and non-response follow up surveys. A paper describing the ongoing monitoring of quality in LFS results, as also previously presented to NSEG, is being published on 22 May. Further work on non-response bias analysis is underway.

23. LFS microdata, including non-responding addresses, is being linked with the Department for Work and Pensions (DWP) and HMRC administrative data to examine the feasibility of more regular and ongoing non-response analysis than the Census-based approach. A timetable for this work is contained within **Annex D**. The administrative data have good coverage of the labour market but are not directly equivalent measures of LFS variables. Nevertheless, whilst at an early stage, the initial findings from aggregate comparisons suggest:
    i. trends in LFS employment estimates and those based on other survey and administrative sources are consistent and not diverging; and
    ii. aggregate comparisons of employment by industry groups reinforce known discrepancies in certain sectors, especially public sector, believed to be caused largely by self-reporting bias.

24. Household type is a key correlate of employment characteristics so a primary measure of survey bias which we are keen to examine is whether the LFS is capturing different types of households in their true proportions. Initial analysis suggests:
    i. the LFS is capturing fewer single person or couples with no children households since the 2011 Census-based analysis;
    ii. if this is caused by differential non-response rather than demographic change then modelling suggests headline employment may be 0.3 percentage points lower than current estimates – this is at the limits of the sampling error (+/-0.4 in Feb).

25. To further this analysis requires an auxiliary data source capable of providing estimates of household type. There is currently no such source, however, the Admin Data Census team are working with Methodology to develop a method for this from new administrative data sources. **NSEG to note the early findings.**

26. The most value from this new analysis will be derived once the feasibility of linking non-respondent information is complete and the characteristics of non-respondents examined. The data use is firmly controlled and HMRC and DWP will need to give permission for publication. Data as a Service (DaaS) are liaising with HMRC and DWP.

27. Concerns around migration statistics have been effectively managed by developing a comprehensive set of weaknesses, RAG scored by severity and impact and a published work plan for improvement developed with input from key stakeholders and external experts. The same approach shall be used with the analysts leading (Labour Market and Households Divisions) and with dedicated resource established within the LFS team to respond to demands without impacting on production and operations. **NSEG are asked to agree this approach**.

The longer term

28. The long term strategic solution is a dual strand approach of the integration of survey and non-survey data sources and statistical redesign. The vision for labour market statistics within the Economic Statistics Transformation Programme (ESTP) is to use non-survey data (e.g. PAYE tax, benefits etc.) supplemented by surveys in the production of labour market estimates. Due to the nature of some of the target variables (e.g. unemployment is based on whether someone is actively seeking work) an ongoing labour market survey is still likely to be required. This is becoming known as the labour market core.

29. The labour market core is being designed within DCTP as part of an overall rationalised, modular survey infrastructure aligned with the Population Coverage and Attribute Survey requirements of the Administrative Data Census. **Annex E** illustrates how this builds incrementally with each DCTP milestone. A first test of the new LFS online design will be run by Ipsos-Mori for 40,000 households at the end of June. This differs from the option in 20. as the objective of the Ipsos-Mori test is to optimise online take up and test incentives using a questionnaire designed only for online self-completion. Some aspects of the new labour market core content will be included however the remainder is still in development.

30. A joint project between Labour Market and Households Division and Social Surveys Division has been exploring the scope for an 'admin data first' LFS, but there is more work to be done. This could be accelerated by getting some external support to develop this proposal and understand remaining survey requirements. **NSEG are asked to agree to commission the external work.**

31. The future survey requirement should also seek to consider additional channel shifts such as the use of e-mail, text and social media. There is a need to develop a more radical think piece and feasibility study of other channels that is not yet reflected in DCTP plans.

32. The longer term work is now being steered by an LFS Strategy Steering Group made up of Directors and jointly chaired by DG PPP and DG ESG. **NSEG are asked to note.**

Conclusion

33. LFS response rates remain below target as a result of reduced field capacity as well as ongoing levels of refusal. NSEG are asked to discuss a package of additional short term measures that are expected to improve the situation. In the medium term variations to contract for field staff, more efficient fieldwork geography and ongoing technological improvements are needed. Analysis of any resulting non-response bias in LFS results is

at an early stage. Whilst initial findings are mixed, issues do exist and there are lessons to be learnt from the management of migration statistics. The long term strategic solution is a dual strand approach of the integration of survey and non-survey data sources and statistical redesign.

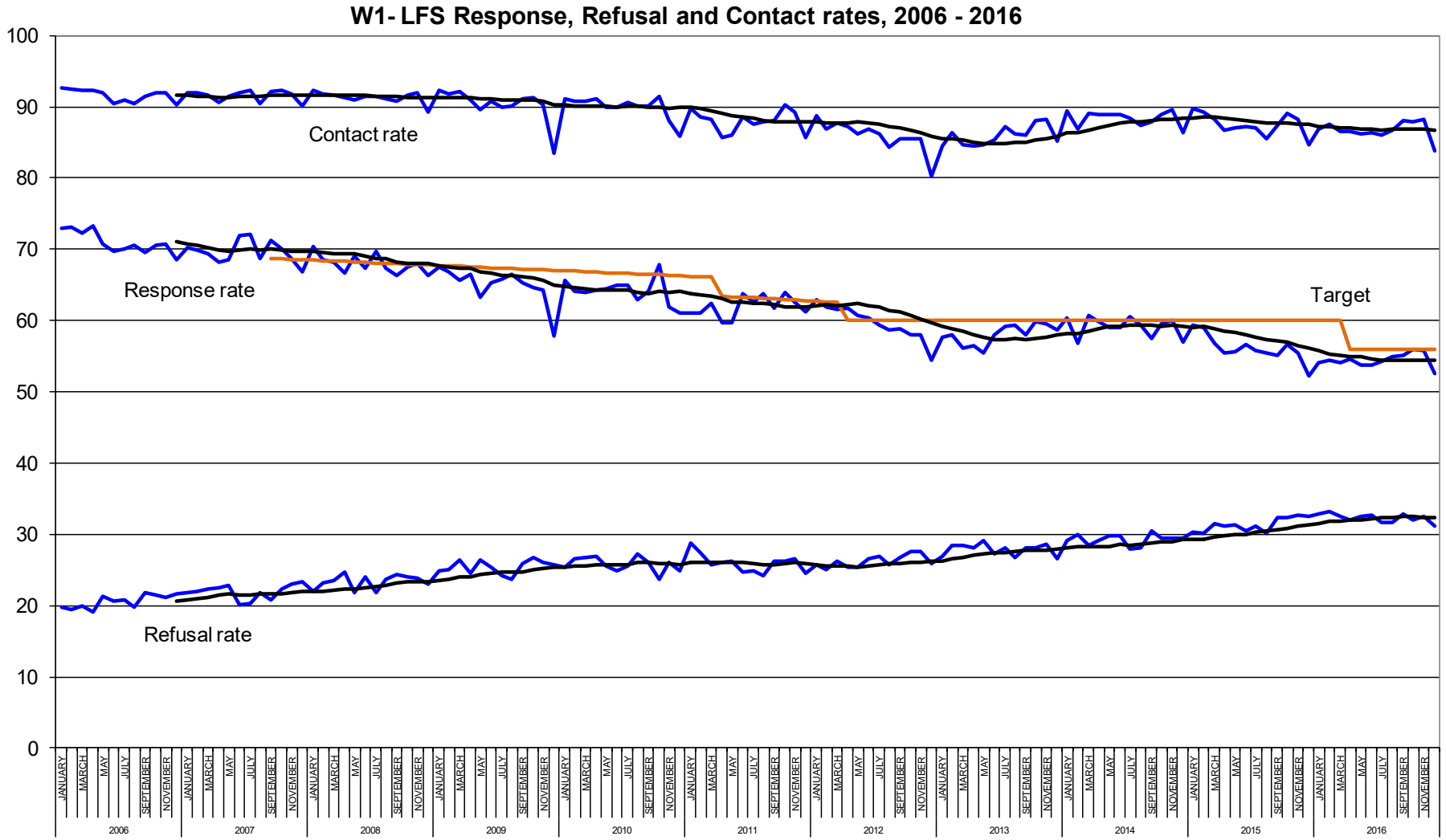
Lead Author – [redacted], **Social Survey Division 15 May 2017**

Contributions, comments and steer received from – [redacted]

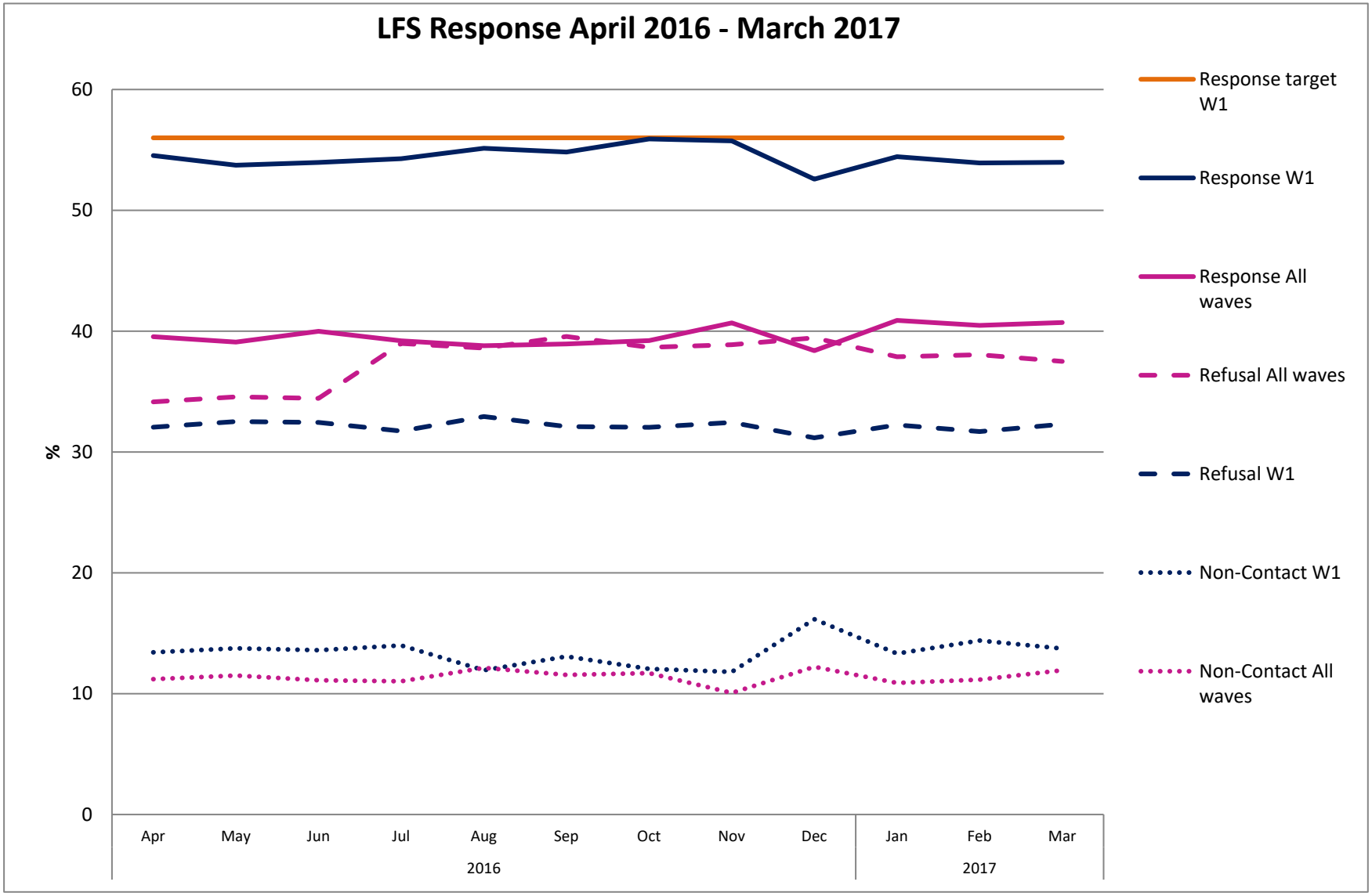
List of Annexes

Annex A **10 yr Labour Force Survey Wave 1 Response, Refusal and Contact Rates**
Annex B **12 month Labour Force Survey Response, Refusal and Contact Rates**
Annex C **Average response rate decline selected UK household surveys since 2001**
Annex D **Non-response bias analysis timetable**
Annex E **The incremental delivery of the long term vision**

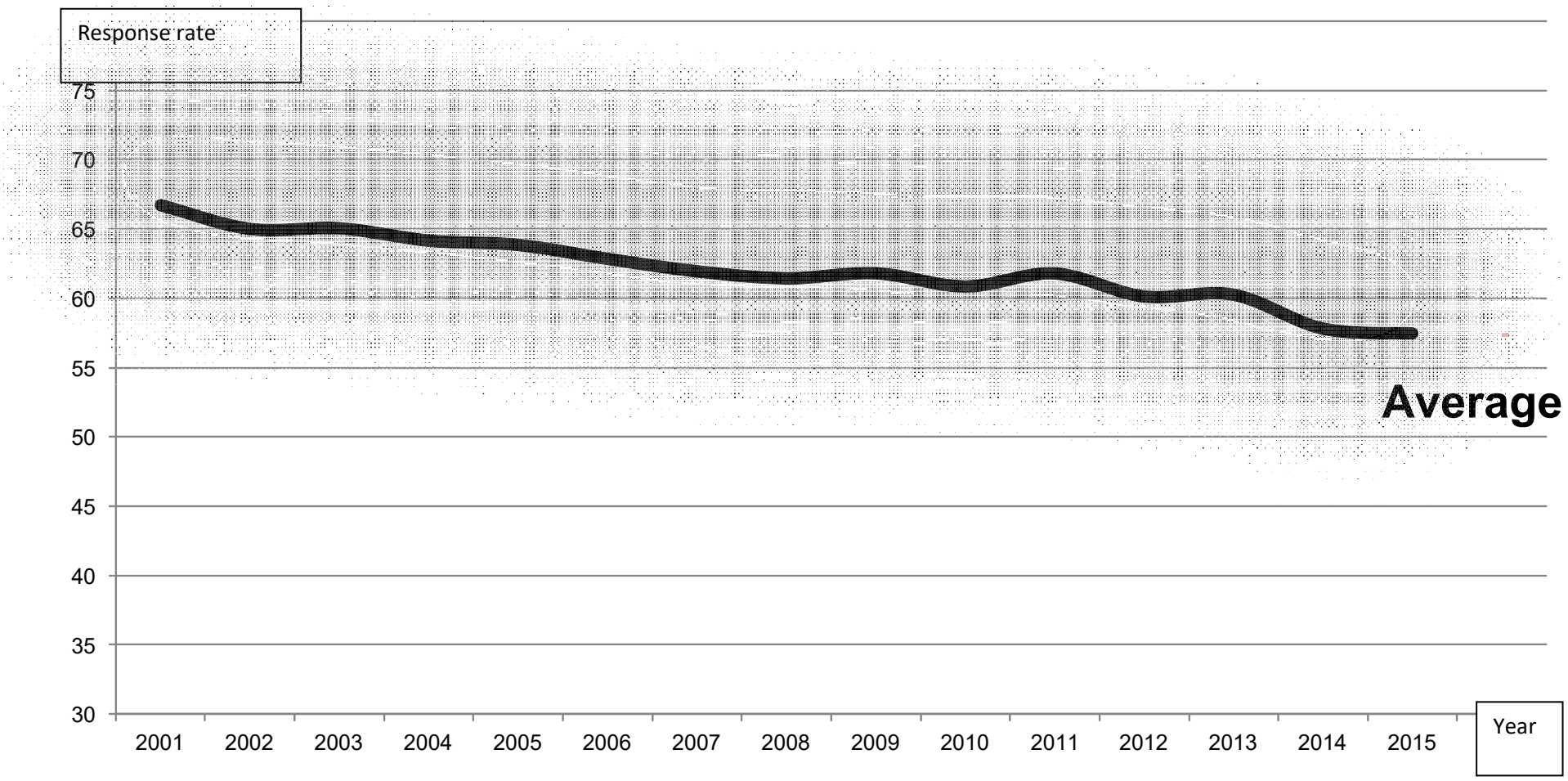
Annex A - Labour Force Survey Wave 1 Response, Refusal and Contact Rates - 10 years



Annex B - Labour Force Survey Wave 1 and All Waves – last 12 months



Annex C - UK response rate trends: the average decline of selected other UK household surveys from ONS, National Centre for Social Research, Kantar/TNS-BMRB and Ipsos Mori



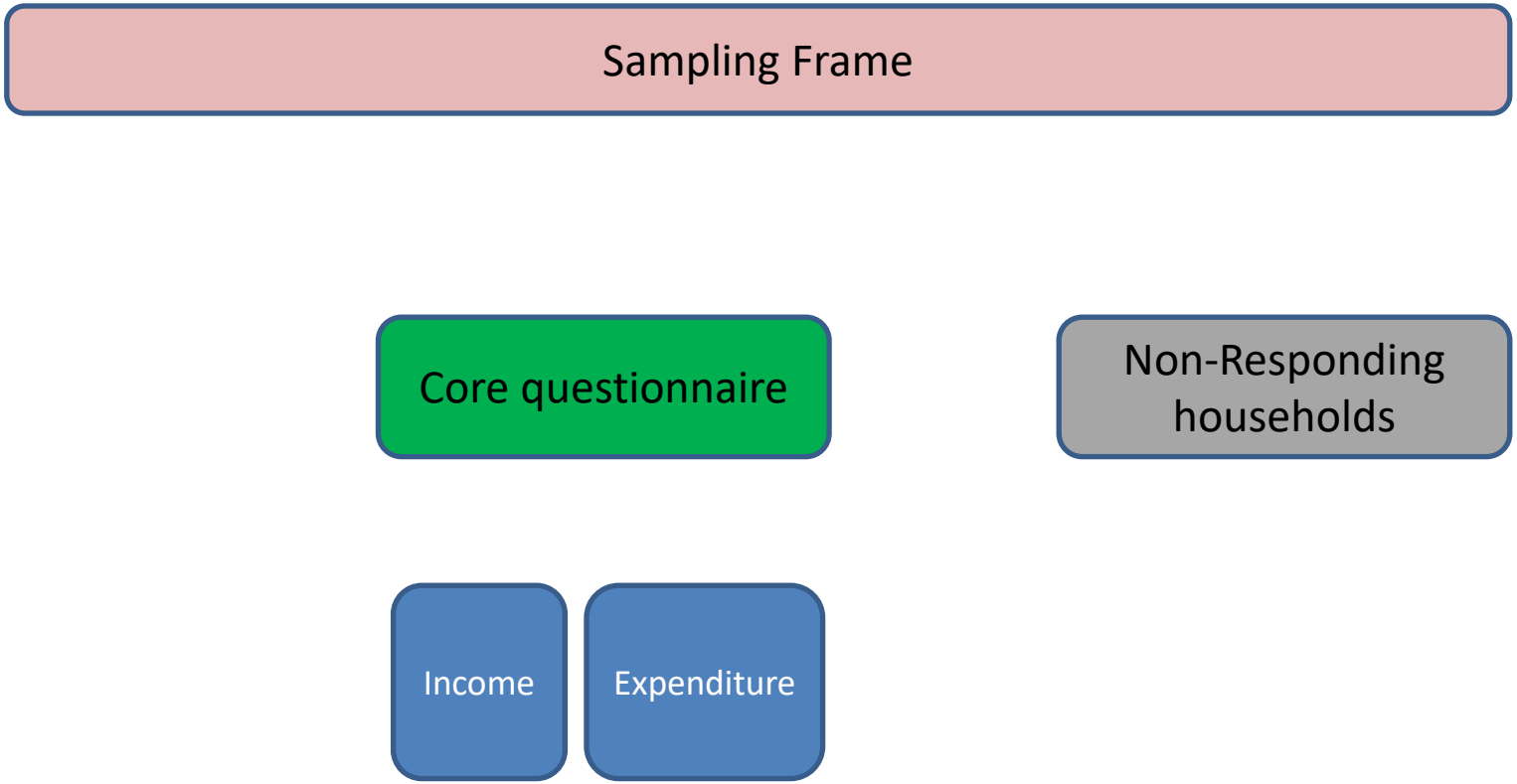
Source: Market Research Society Round Table Event held 18th May 2017

Annex D Analysis plan timetable

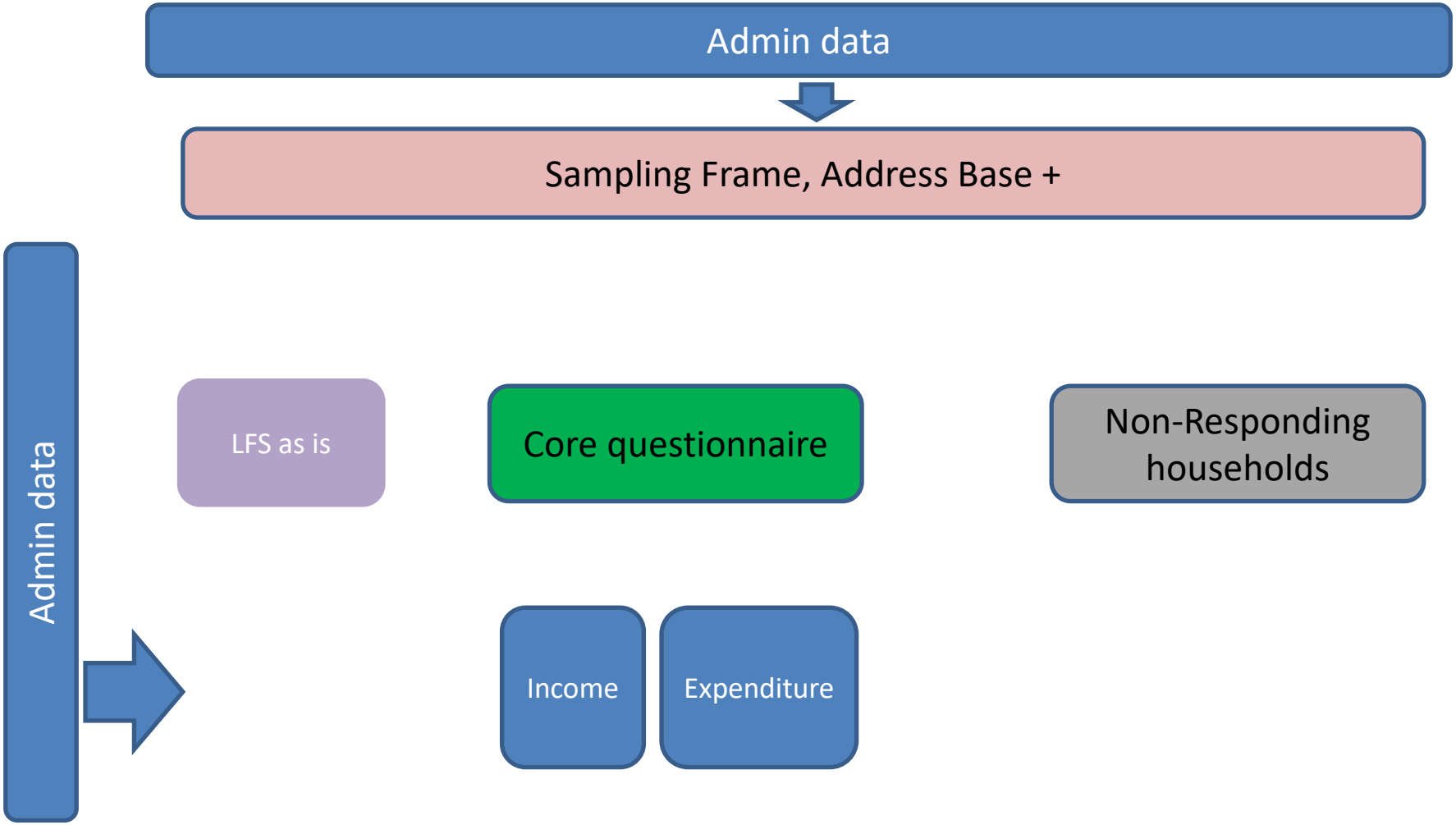
Target date	Specifics	Who	Progress
15th May	Comparison of JSA estimates (as proxy of unemployment) from auxiliary sources, versus LFS estimates. Provision for internal use. Aim is to provide similar analysis for household composition, too.	DaaS supply Methods and PPA - analysis	In progress. Some initial issues with datasets. Datasets re-supplied 12th May
19th May	Aggregate tables comparing LFS responding households versus non responding households – delivered by DaaS to MD	DaaS supply; Methods analysis	
Late May	Review of aggregate tables comparing LFS responding household and non responding households, on BIDS data proxy variables for unemployment, income, household composition.	Methods, PPA & SSD	
End-May	Obtain sign off of BIDS data owners to publish findings	DaaS	
End-May	Conduct negotiations with Council Tax data owners to assess whether we can use for matching purposes. Note: web-scraped council tax data has proved to be of little value	DaaS	
Mid July	Publish initial report outlining findings (what sources have been usable/limitations; assessment of representativity on variables considered to date) and plans for future investigation	SSD,	
July onwards	Continued devpt of analysis including household type		

	estimation methodology		

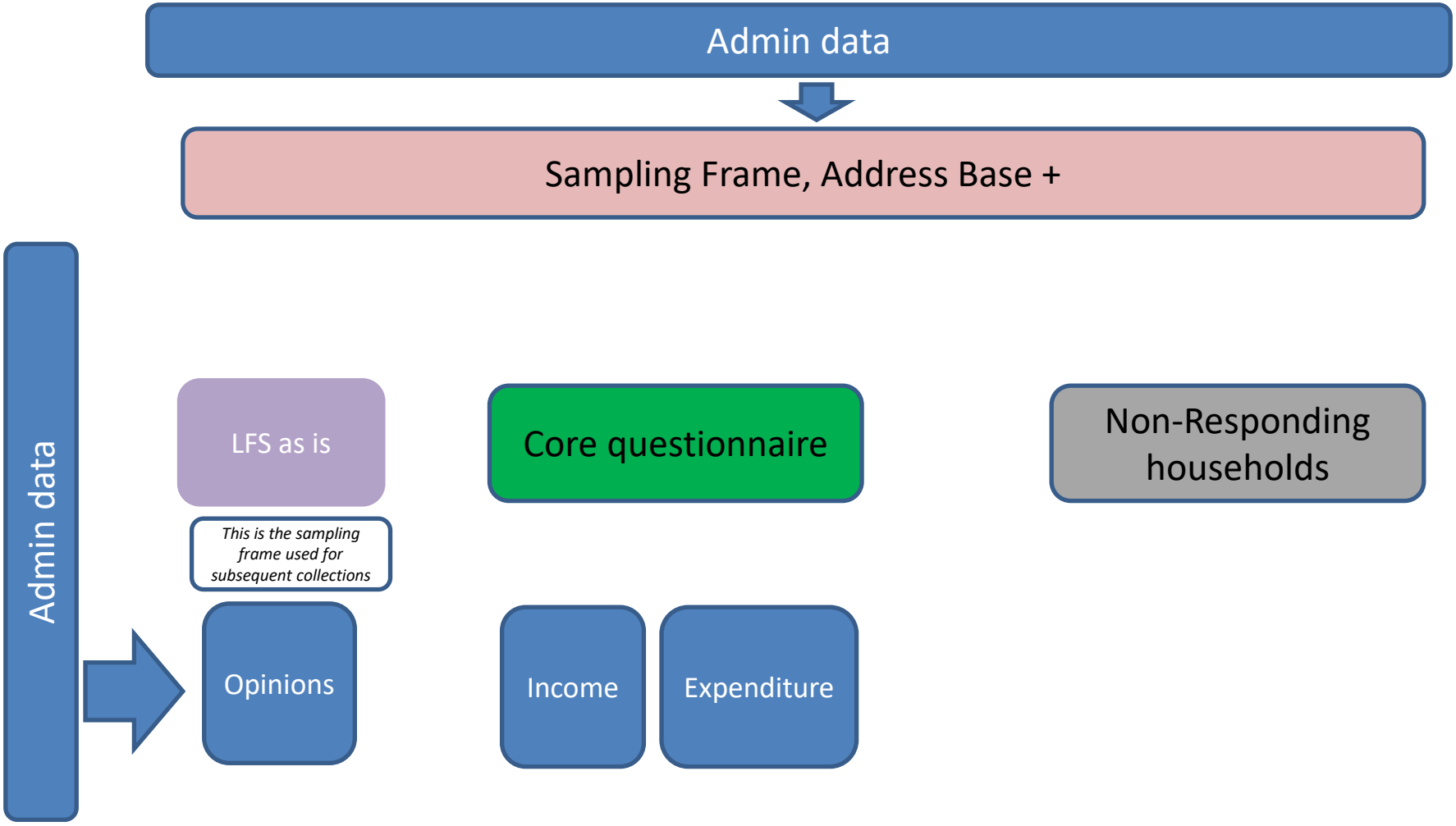
January 2017 – rationalisation of household financial surveys phase 1



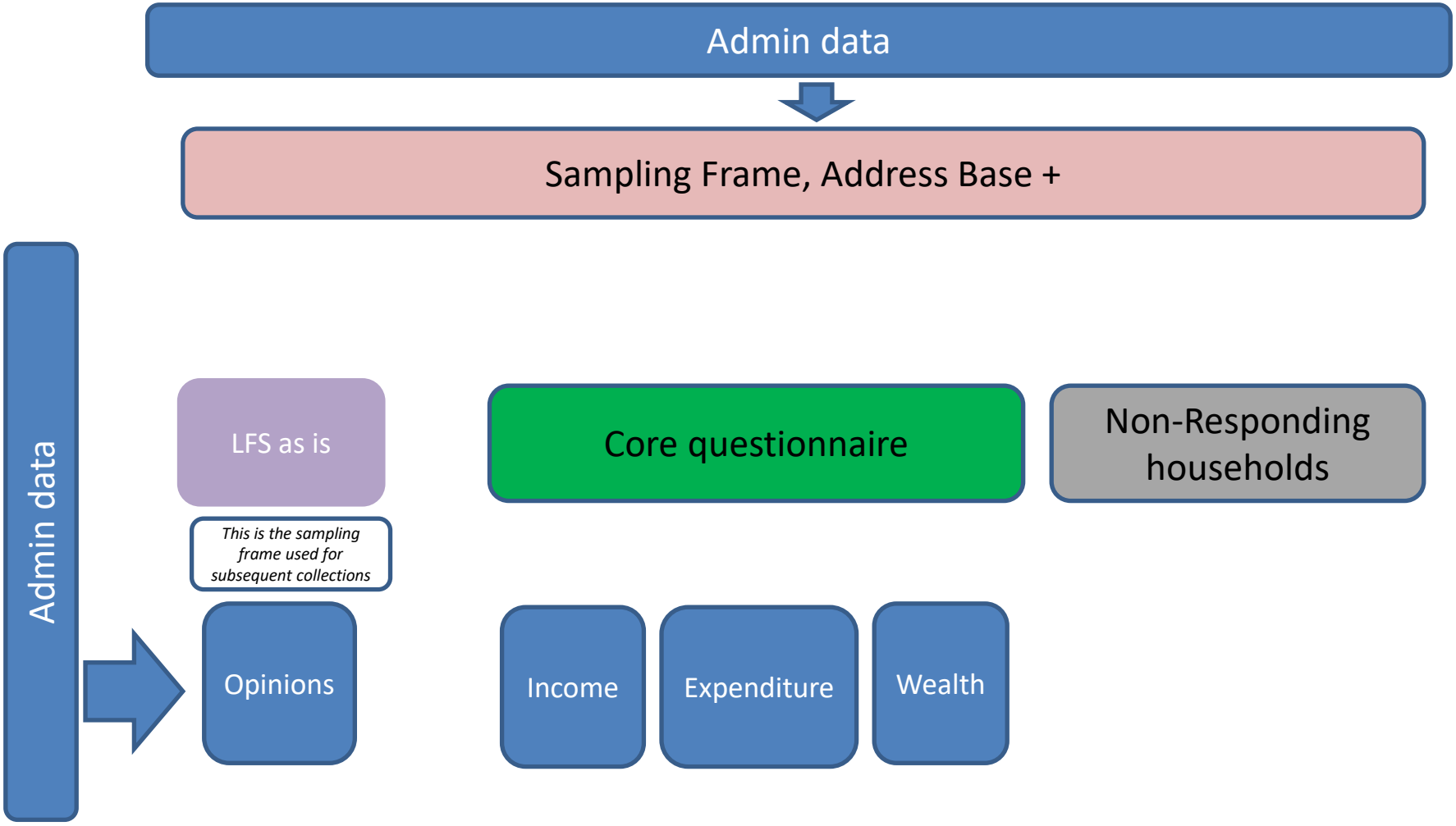
January 2018 – LFS as is & household financial surveys sample and integrated with admin data phase 1; some admin data variable replacement



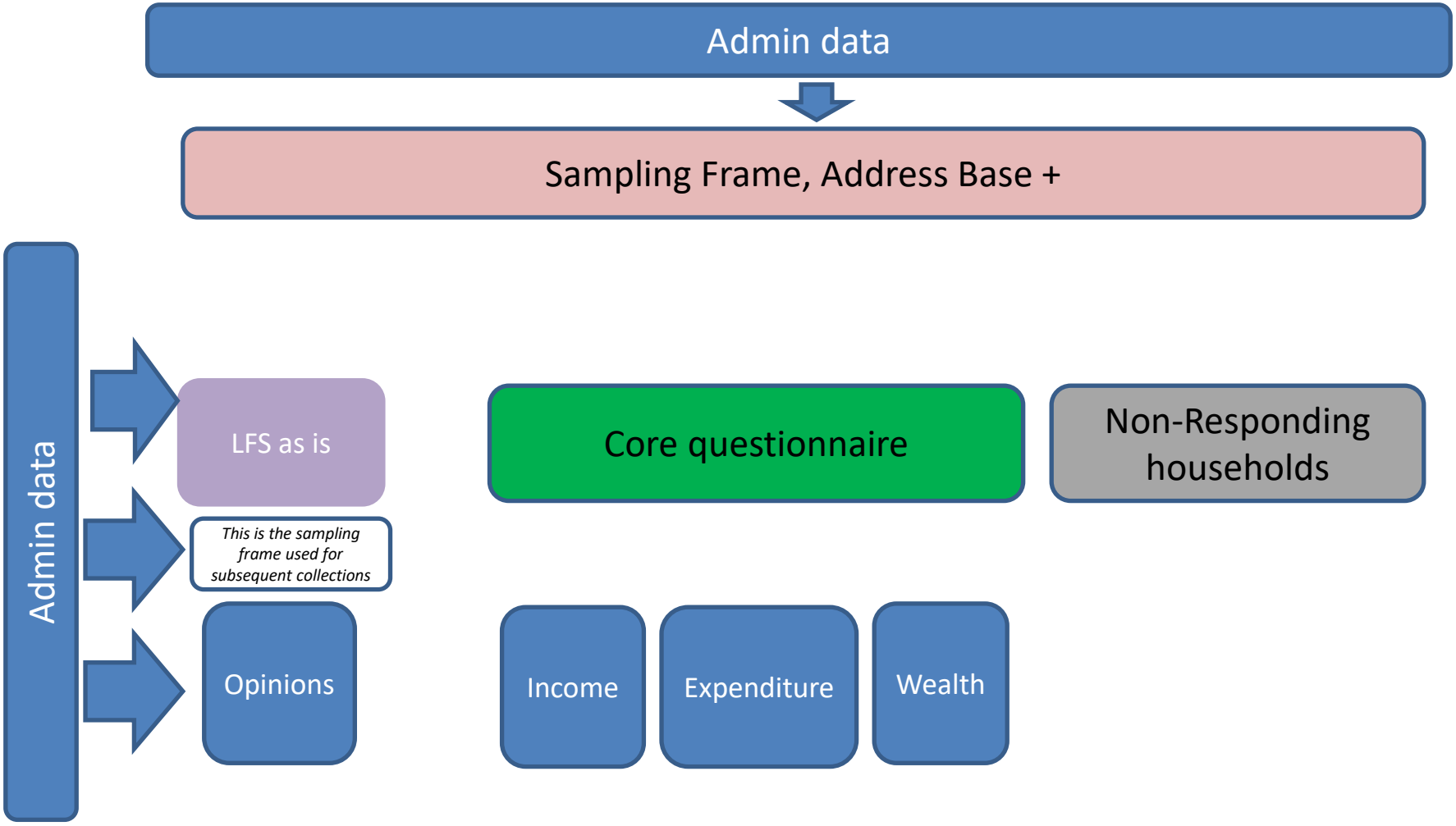
April 2018 – New Mixed Mode Opinions survey



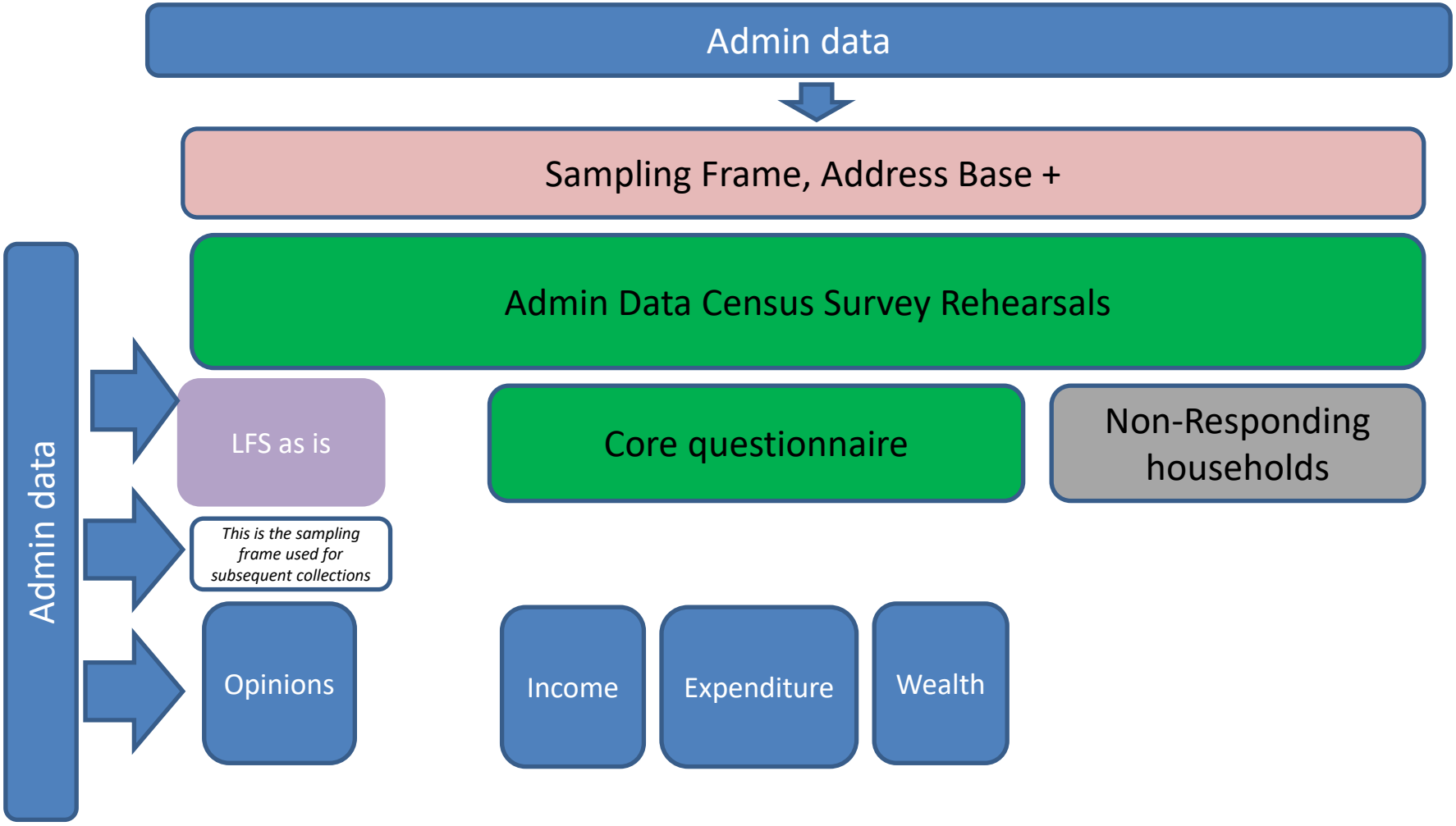
July 2018 – rationalisation of household financial surveys phase 2



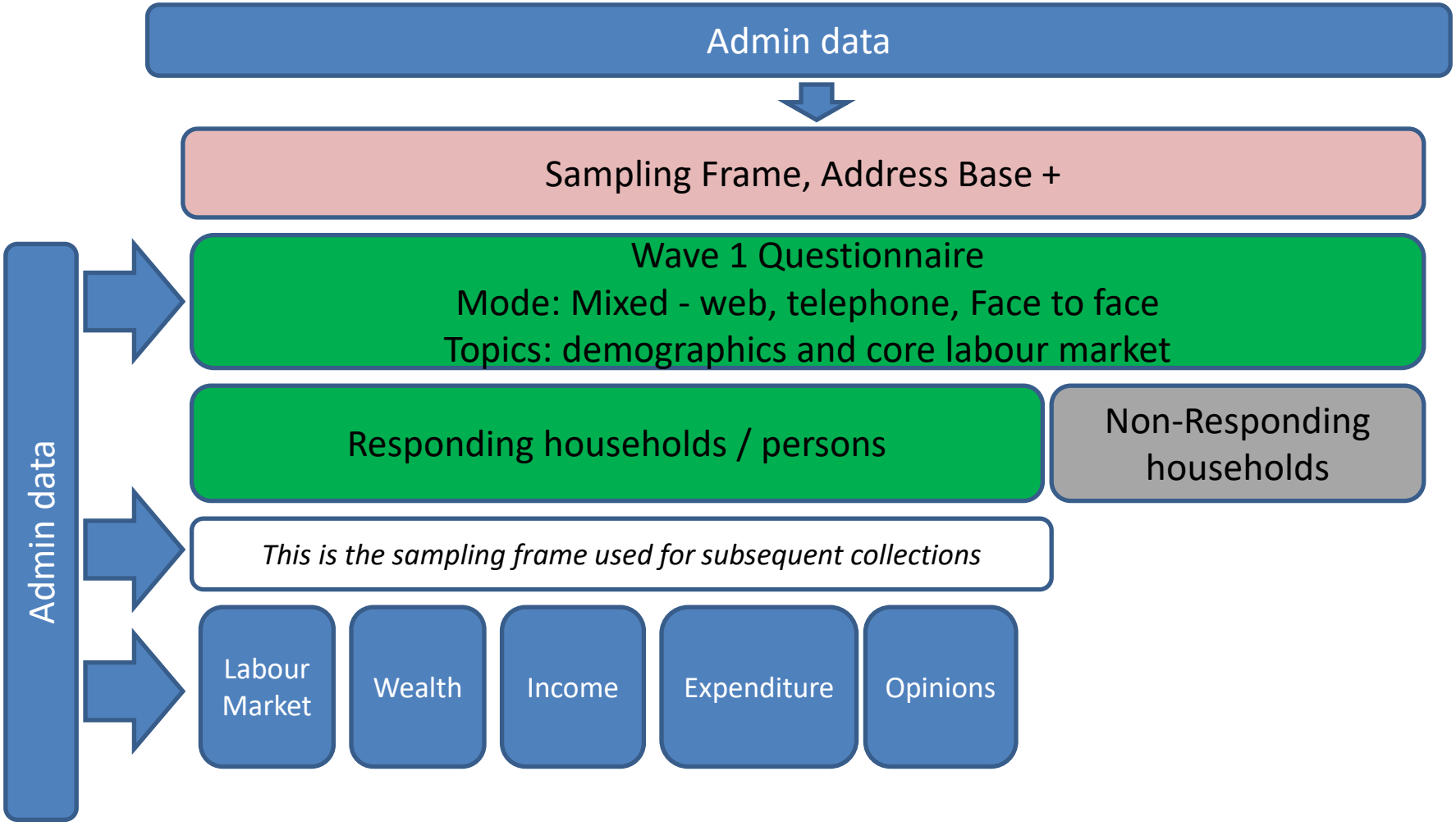
April 2019 – admin data integration with household financial surveys phase 2



Mid-2019 – Admin Data Census survey dress rehersals



April 2020 – launch of integrated, modular system



Integrated Population and Characteristics Survey (IPACS)

1.0 Introduction

The Office for National Statistics (ONS) is working towards the transformation of Population, Migration and Social Statistics. The Census & Data Collection Transformation Programme (CDCTP) seeks to rebalance ONS's data collection activity significantly toward wider, more integrated use of administrative and other non-survey data sources, thereby reducing our reliance on large population and business surveys. While this will not eliminate a need for surveys, it does mean ONS's traditional approach to surveys is likely to change. To support this agenda, ONS is also working towards the development of an Integrated Population and Characteristics Survey (IPACS) which;

1. will support the production of Population, Migration and Social Data from administrative data and other non-survey data sources and;
2. serve as the future sourcing model for any residual population, migration and social data.

Three underlying principles support the development of the IPACS;

- **Administrative data first**: an admin data first approach will allow us to make greater use of existing non-survey sources for statistical outputs, to increase the efficiency of sampling and data collection processes, and to replace and/or enhance survey variables
- **Digital by default**: residual survey data collection will predominantly use online methods, supported by face-to-face and telephone interviews
- **Statistical redesign and rationalisation**: wherever possible we will bring residual survey requirements together so that we minimise the need to ask for the same data across multiple surveys

In this paper we describe the principles behind the IPACS, testing undertaken to date and our future test plans between now and 2022. Key methodological considerations underpinning an IPACS will be highlighted also.

2.0 Background

2.1 Population & Migration Statistics Transformation

Population & Migration Statistics Transformation (PMST) has developed a Statistical Population Dataset (SPD) to support the development of administrative data population estimates. This is constructed by linking 4 sources together that, when combined, are expected to cover a large proportion of the usual resident population (including some overcoverage). These are:

- The DWP Customer Information System (CIS) – a list of all NINo registrations
- The NHS Patient Register (PR) – a snapshot of current GP registrations
- Higher Education Statistics Agency (HESA) – students registered in the year for higher education courses
- The English and Welsh School Census (SC) – pupils registered in state schools

These datasets are characterised by both undercoverage and overcoverage of population and an adjustment is required to account for them in population estimates. Methods to account for under-coverage are already well established in traditional censuses, for example the Dual System Estimation (DSE) approach that was used for the 2001 and 2011 Census of England and Wales. By linking multiple administrative sources to construct the SPD the level of population under-coverage is reduced. However, we still anticipate that there is some residual undercoverage and depending on the availability of additional data sources that can account for persons missing on the SPD, it is likely that a similar DSE adjustment may be needed to account for undercoverage.

Measuring and adjusting for over-coverage on the SPD represents a more significant challenge, particularly within a DSE framework. Amongst other assumptions, DSE requires that datasets used in the estimation framework are free from overcoverage. However, attempts to detect and remove over-coverage from the SPD have not been successful to date. Methods for measuring over-coverage are being pursued across a number of countries, and ONS are working with colleagues across NSIs to better understand the properties of estimators that incorporate over-coverage adjustment. As a consequence, future SPDs may be redesigned to best meet the properties of these estimators.

The concept of 'dependent interviewing', which involves sampling households and directly checking whether persons listed on administrative records are resident at the address, has been explored as an option for ONS, but ruled out due to sensitivities regarding the disclosure of information about previous residents. It is now proposed that an ongoing Population Coverage Survey (PCS) for collection on a continuous basis be developed to measure and adjust for the both under and over-coverage biases.

2.2 Social Survey Transformation

Within the context of the Census and Data Collection Transformation Programme, Social Survey Transformation (SST) is responsible for transforming the statistical design of the current household survey portfolio, from one that has little to no integration across survey designs into an integrated design.

Our vision is to deliver an integrated approach which utilises non-survey data as the primary source for household data outputs. This is dependent upon such data being assessed as meeting quality requirements for the outputs in question. Non-survey data shall also be used as a means of designing better samples for those residual surveys that will be required to complement these data sources.

Surveys will be 'digital by default' where possible but will utilise an online only mode for an initial period, followed by concurrent mixed mode methods (online, face-to-face and telephone). This vision and the plans that underpin it align with the Authority's strategic objectives of increasing on-line collection, survey rationalisation and greater integration of non-survey data sources into statistical outputs.

SST is responsible for the transformation of the Labour Force Survey (LFS), the Household Financial Surveys (encompassing the Living Cost & Food Survey (LCF), Survey on Living Conditions (SLC), Wealth and Assets Survey (WAS) and the Opinions and Lifestyle Survey (OPN). Work to date has focussed on transformation of the Labour Force Survey; a prototype version of a questionnaire including core labour market variables has been developed – this is referred to as the Labour Market Survey (LMS). Work is also ongoing for the transformation of the Household Financial Surveys and the non-labour market elements of the LFS.

2.3 Integrated Population and Characteristics Survey (IPACS)

PMST and SST are working together to meet future requirements for the production of Population, Migration and Social statistical systems, via the development of an IPACS.

A key feature of the IPACS is a wave 1 questionnaire with a large sample of 500,000 households, which driven by the required level of precision for the PCS. This is referred to as the 'Master Wave', and is designed to collect socio-demographic data, core labour market data, and to provide an assessment of the coverage of administrative data that will be used to derive population estimates.

The 'Master Wave' would be collected via a concurrent mixed mode questionnaire, with an online first approach. Non-responding households would be invited to take part in a face-to-face interview. The responding households to the wave 1 'Master Wave' would then act as the sampling frame for subsequent waves or other social surveys which containing topics to meet residual social survey output requirements.

Figure 1 illustrates the key components of the IPACS. It would be designed with an administrative data first approach in mind, with the idea being to utilise administrative data sources wherever possible to satisfy population, migration and social data requirements. Surveys would be used to capture any residual requirements, including population undercoverage requirements.

Our current thinking for the collection of residual survey requirements is described well by the work of Karlberg, Reis, Calizzani, and Gras (2015). They propose the creation of a series of 'modules', 10 to 15 questions that 'logically belong together' (i.e. address various aspects of a certain topic). Modules would then be grouped into 'instruments', where an instrument in defined as a sequence of modules. Each instrument would allow the joint observation of several modules from the same statistical unit and thus the crossing of variables from different modules. Modules could be present in one or more instruments, thereby providing cross-survey consistency. This approach is also being considered by Statistics New Zealand for their own integrated household survey model.

Figure 2 provides an illustration of how residual survey requirements might be met beyond the 'Master Wave' using the instrument and module design, and provides an example of how cross-instrument analysis could be performed. These subsequent waves / surveys would again be online first, but would use telephone collection in addition to face-to-face interviewing.

The proposed design would utilise AddressBase+ as the sampling frame; the current sampling frame for Social Surveys, the Postal Address File (PAF) has an eligibility rate circa 91%, compared to a 95% eligibility rate for the AddressBase product. Administrative data would be used to supplement the AddressBase sample frame to identify more ineligible addresses which will increase the efficiency of data collection operations.

Figure 1: Proposed Design of the Integrated Population and Characteristics Survey (IPACS)

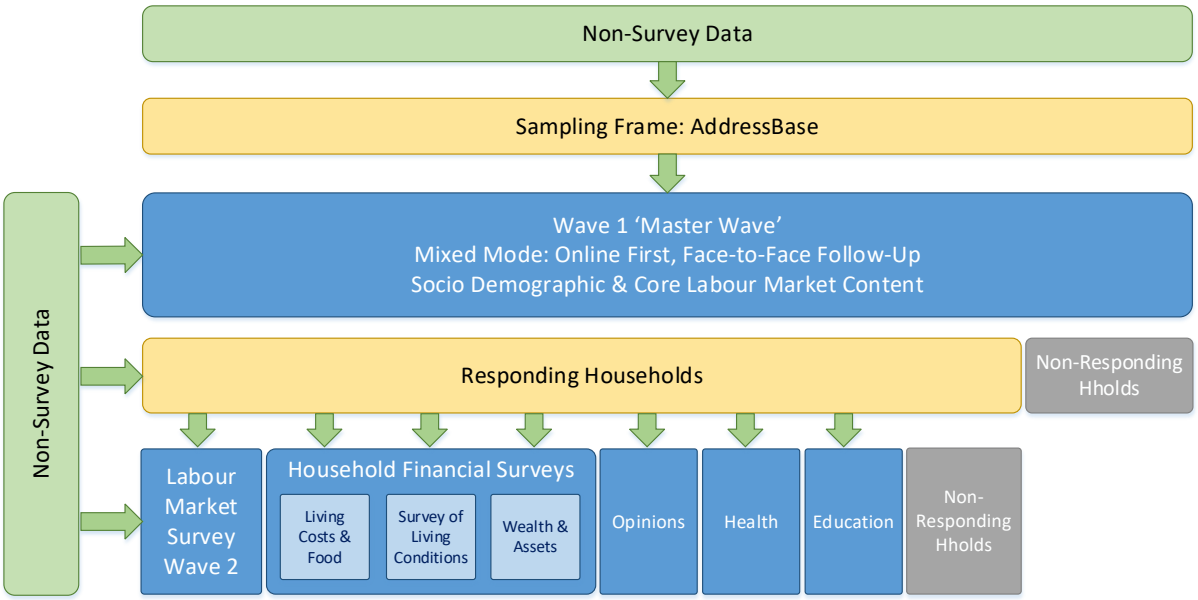
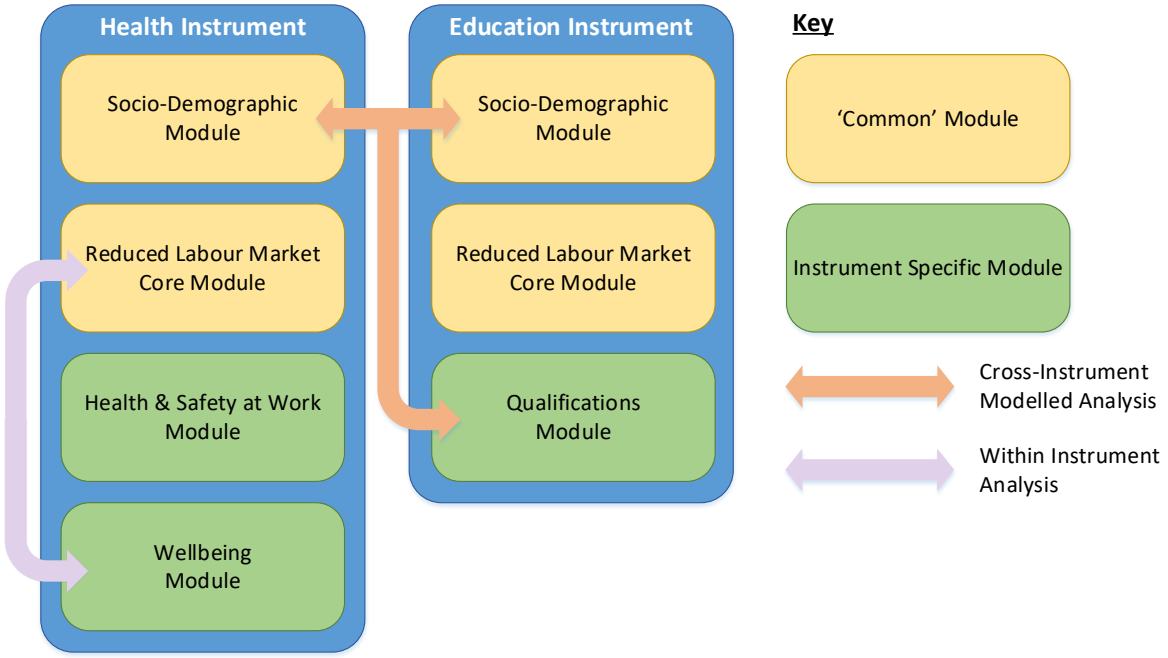


Figure 2. Illustrative example of Wave 2 survey structure



2.4 Key **benefits** of integration

There are key benefits to moving from a non-integrated to an IPACS:

- A more **cost efficient** system; An integrated system for the production of population, migration and social statistics will significantly reduce data collection operations when compared to the costs for the decennial Census, and the regular collection of Social Surveys. Despite the large size of the 'Master Wave', the greater use of non-survey data, online first data collection, and survey rationalisation will result in the overall cost of the data collection operations being significantly lower
- The **simplifying and standardising** of data collection and processing systems across the integrated system will also reduce costs and will provide more consistency in production and analysis.
- As a result of merging the PCS and LMS, the large sample size required for population statistics will have the likely benefit of providing core labour market outcomes at a **more precise and lower geographic breakdown** than is currently available from the existing LFS.
- A more **efficient** and **flexible** system: Karlberg et al. (2015) describe how non-integrated survey systems, such as our current system, lead to rather large 'overloaded' questionnaires and oversampling of certain items that are piggy-backed onto a larger survey without sub-sampling. They describe the problem of 'excessive sampling' (i.e. the collection of data on a variable from a sample that is bigger than it needs to be to obtain results with the desired level of precision). They state that by considering surveys simultaneously, better decisions can be taken on where to add new variables, or whether they can be added at all, on the basis of the overall priorities of the statistical system. Although the IPACS would involve sampling 500,000 households at Wave 1, by satisfying the principles described by Karlberg et al. (2015), coupled with an administrative data census, the IPACS will satisfy core population, migration and labour market requirements simultaneously. Further, it is intended that the Wave 1 questionnaire is limited in length, containing only 'key' core questions. Respondents would then be routed to subsequent wave 2 modules. In this way respondents would not be subjected to lengthy questionnaires or asked unnecessary questions, though some sample redundancy would remain.
- A **reduction in respondent burden** will result from rationalising individual household and population surveys into the IPACS. Rationalisation of questionnaires and the greater use of non-survey data sources for question replacement will result in shorter, more focussed residual surveys which take significantly less time for households to complete.
- An IPACS has the potential to provide higher levels of **flexibility** than the current system and a **more responsive** tool to meet policy needs – increasing value to users. The only way to satisfy additional survey requirements in our current system is to add to existing surveys, which can lead to large 'overloaded' questionnaires and sometimes oversampling of certain variables or to set up a new survey, a resource intensive exercise. Considering all survey data collection requirements simultaneously should allow for better and more flexible decision making on the content of the surveys.
- **Improved opportunities for cross-analysis** - a limitation of our current system of non-integrated surveys is that it is difficult to provide cross survey statistics. This problem is overcome to a certain extent by excessive sampling (i.e. including key analytical variables on all surveys). However, this does not allow for cross-analysis in any depth. Designed in the correct way, an IPACS would allow for the production of statistics that cross statistical domains (Karlberg et al., 2015). It is acknowledged that the benefits of this come with some significant challenges, namely the potential complexity of the analytical processes that would be required to produce such outputs.

2.5 Key **challenges** of integration

- **Harmonisation of sample and survey designs**; for example, PCS uses an unequal probability stratified, clustered sample compared to LFS which uses an equal probability random sample. Work is underway to determine the most efficient and effective sampling technique for the IPACS.
- **Harmonisation of questions and definitions** between surveys; for example, LFS currently captures information on earnings in a different way to HFS. This is an opportunity to provide more harmonised stardards across outputs where possible, but will present challenges when considering breaks in time series or different legislative requirements (e.g. EuroStat outputs).
- **Understanding user requirements** – there are a vast array of users of the LFS and APS who use the data in a multitude of ways; an exercise is underway to gather core user requirements from Government departments and to categorise these into common themes.
- **Reference weeks** – to aid respondent recall for the online mode, a 'rolling' reference week has been used for core labour market questions. The impact of this, compared to the fixed reference week approach currently used by LFS, is currently being explored.
- **Interviewer challenges** – the job of a field interviewer may become more challenging as an online first approach may be capturing those households who are more amenable to participating in a voluntary survey; interviewers may therefore encounter the 'harder to reach' households
- Modernisation and integration of surveys could result in contextual or mode effects; the thorough approach to survey rationalisation, redesign and testing is closely considering these potential issues. This will allow us to fully understand and minimise any such impact.
- **Attrition** could introduce additional **bias** in social survey estimates. A mulit-wave attrition test is currently underway which will allow us to explore this issue, with further testing planned for 2020.
- **Non-response.** The Census Coverage Surveys in 2001 and 2011 achieved response rates higher than 90%. This is largely due to the collection taking place 6-8 weeks after Census day and the perception that it is mandatory to participate. From a PCS perspective, it will be much more apparent to respondents that participation is voluntary, and response rates are expected to be significantly lower than 90%. Depending on the relationship between survey non-response and admin data coverage, this may result in biased population estimates. Work is continuing to assess required response rates and how these could be addressed.

3.0 Integrated Survey Testing

An agile and iterative approach to testing has taken place over the past 2 years, with each test designed to provide information and understanding of operational and statistical processes, and to build upon the outcomes of each previous test. Cumulatively the tests provide assurance towards the development of the IPACS from both quantitative and qualitative perspectives.

2017

In February 2017, ONS commissioned Ipsos MORI to conduct a series of response rate tests to establish the optimum design for a future LMS. The experiments focussed on a prototype LMS questionnaire – composed of a core set of LFS questions transformed by the Research & Design Team within SST. However, these experiments also offered an opportunity to explore response rates to an integrated survey. An integrated survey was also created composing both Labour Market and Population Coverage questions.

The first test involved administering an **online only** LMS to 37,000 households across Great Britain. It explored the effects of alternative combinations of survey materials (i.e. invites, pre-notification letters) and conditions (i.e. day of dispatch, length of time between invites) on uptake rate[1] to the survey. The most effective communications strategy was found to be an invite letter followed by two reminders, issued one week apart. This approach was difficult to put into operation, so the second most effective strategy using one reminder was chosen.

The second test investigated the effects of different incentive strategies on uptake rate. Again, this test was **online only** and was administered to 40,000 households. When both cost and uptake were taken into consideration, the most effective incentive was found to be the non-monetary incentive of a tote bag, achieving **27.8%** uptake rate.

The second test also explored response rates to both the integrated survey and individual LMS and PCS. Figure 2 illustrates the three comparative response rate experiments that were undertaken as part of this test.

Figure 2: Concepts underpinning the ONS Integrated Population and Characteristics Survey (IPACS)

Tests		Online	Follow Up			
			Telephone Capture	Face to Face	Paper	Survey Enquiry Line
Test Two	Tranche One	15 Mins - LMS	×	×	×	✔
	Tranche Two	5 Mins - PCS	✔	✔	✔	✔
	Tranche Three	15 Mins - LMS + 5 Mins PCS	✔ (PCS Questions Only)	✔	✔ (PCS Questions Only)	✔
Run by Ipsos Mori			Run by ONS			

Table 3 shows the PCS alone achieved the highest take up rate (67.6%). This may be due to the shorter questionnaire length. However, a longer fieldwork period and different agencies collecting the data may also have contributed. It also shows that integrating the LMS and PCS reduces the take up rate by around 10%. The integrated survey achieved a lower partial rate compared to the PCS alone, a partial being defined as a household who did not fully complete the survey. The integrated questionnaire used in these experiments was not put through the rigorous research and cognitive testing process that the LMS alone underwent. With proper research and testing it is thought this gap can be reduced. Detailed cognitive testing of PCS questions is currently progressing and recommendations to improve questions will follow. The results of the 2017 test were taken as positive support to continue with the development of an IPACS.

Table 3: Take up rates for the LMS, PCS and Integrated Survey

Tranche	**Take up rate (%)**

[1] Uptake rate is defined as the proportion of households who enter any amount of data into the online collection instrument (all partial household completions and full household completions). This is different to response rate which includes The uptake rate calculation excludes ineligible households.

1 – LMS (online only)	22.5
2 – PCS	67.6
3 – LMS and PCS	56.8

2018

In October 2018 ONS commissioned Ipsos MORI to conduct a further test of an integrated labour market and population coverage survey. This was a mixed mode (online and face-to-face) test administered to a sample of 14,149 households across Great Britain. The aim was to investigate the mixed mode uptake rate, the responding sample composition and any response bias that may arise. Data collection is complete, and analysis of the data will commence imminently. Comparisons will be made between key employment variables collected on both the LMS and LFS at a national level. This will provide evidence towards the quality of the data collection from the integrated survey approach. In addition to these aims, the analysis of the test will provide evidence on whether the survey can provide sufficient information to support an admin data population estimation system. The aim is to use the data collected to test methods for estimating population at the national level for five-year age-groups. In addition to the core sample, 3,000 further households have been added to the 14149, in addresses where the admin data suggests that an international migrant is resident. Flag 4 registrations (an indicator of migration to UK) on the NHS Personal Demographic Service have been used to select addresses where migrant families have registered during 2018. . This is part of early testing to determine whether a boost to increase the coverage of international migrants in the sample can help support future international migration statistics.

2019

Tests to date have demonstrated that, in principle, we can integrate surveys to satisfy both social and population data collection requirements without having detrimental effects on the response rate of either. However, this is just the start of a longer-term research and testing strategy for the development of an IPACS. In particular, research and testing are required to explore the quality of data we obtain from an integrated survey, the optimal design for an integrated survey and how best to build on the integrated survey prototype to the scale that will satisfy wider residual social and population survey requirements.

A further test, launched in April 2019, is exploring online uptake and attrition rates across 3 waves of an integrated labour market and population coverage survey. It will test the efficacy of different between-wave engagement strategies, incentivisation at Waves 2 and 3, and the effect these have on attrition rates across waves. This test will be completed by December 2019.

A larger scale test is also planned for 2020. This will be a multi-mode, multi wave test on a larger scale which builds upon the statistical and operational learning from all previous tests. The current proposal is for this test to iteratively build towards a large scale parallel run, which will then become the IPACS and result in the decommissioning of the existing LFS.

4.0 Key methodological considerations underpinning an Integrated Population and Characteristics Survey (IPACS)

4.1 Sample Design

In preparation for the 2020 test, it is critical to establish a sample design that can meet both labour market and population coverage requirements. ONS has published research outputs on estimating population size using administrative data, highlighting that errors in coverage vary across geographic areas and age-sex groups. It is assumed therefore that a stratified design, similar to hard-to-count concepts used in the Census, will be required to optimise the allocation of sample to estimate population size.

While stratification may improve the accuracy of LMS outputs if the stratifier is correlated with labour market variables, we have not yet defined the overall targets on which to optimise a multi-purpose survey. For the 2020 test, we have made the decision to design a sample for population estimation and are in the processing of researching what the design effects might be on labour market statistics, which are currently produced from a random systematic sample.

ONS have started working with University of Southampton on a proposed sample design for the 2020 test, with the aim of producing an estimate of population size at national level, with precision +/- 1%.

This is considerably less precise than the anticipated requirement from 2022 onwards, however limiting the test objective to a national level precision reduces the sample size requirements in early testing. Over time, samples will be designed to produce estimates for more detailed geographies with specified precision, as we increase operational capacity to conduct the survey on a bigger scale.

A key difference in designing a coverage survey for admin data, is that stratification needs to take into account variation in both under-coverage and over-coverage. Non-registration (for example with GP's or applying for National Insurance Numbers) and failures to de-register when leaving the UK result in both types of coverage errors occurring on the SPD. By linking administrative data to the 2011 Census, we have explored variables that potentially predict the prevalence of under-coverage and over-coverage at small area level (output areas) in the SPD.

For **over-coverage** we have derived a variable based on the concept of address churn. This has been calculated by comparing multiple years (2014-2016) across SPDs and counting the people that move in and out of each address. We then sum up the movers and leavers for each address and divide by the number of bedrooms and number of years included in the comparison. The 'mean-churn' indicator used as the basis of over-coverage stratification is calculated as the mean of all address churn measures in each OA.

For **under-coverage** we have derived a composite indicator using principal components analysis. This has been derived from three predictors; the proportion of non-white British pupils in each OA (from School Census data), proportion of Flag 4's (migrant indicator flags) in each OA (from NHS Patient Register), and proportion of males and females in the OA that have some evidence of interacting with administrative data, but have not been included on the SPD.

Based on first iterations, the variation explained by these models using R^2 values is 0.44 for the over-coverage measure, and 0.48 for under-coverage. This is similar to the reported level of variation (0.47) explained by the hard-to-count index used to model non-response to the 2011 Census (ONS, 2011).

At this stage, our research suggests that over-coverage and under-coverage are not highly correlated, therefore separate stratification indices are needed within the design. The Dalenius -Hodges method has been used to determine the optimum number of strata for both the over-coverage and under-coverage measures. Initial analysis suggests that six strata are optimal for both measures, and these strata are proposed to be used in the designed of the 2020 test.

Simulations are being developed to estimate the required sample sizes for each stratum. We have largely focused on over-coverage to date. The sample uses optimum allocation, which results in unequal slection probabilities across strata. A two-stage stratified cluster design is proposed, with OAs selected from each stratum at random as the primary sampling unit. Within the selected OA's, a fixed number of households will be randomly selected to take part in the survey.

Stratification of the sample will have implications for the LMS:

- Having different sampling fractions across the strata leads to unequal design weights, reducing the effective size of the LMS sample compared with the current design of LFS where all sampled addresses have the same design weight.
- Selecting the primary sampling units (OAs for PCS) using simple random sampling and then selecting a fixed number of cases in each OA leads to unequal weights within a stratum. This reduces the effective size of the LMS sample.
- Selecting OAs in the first stage of sampling, instead of sampling addresses as LFS currently does, will result in a reduction of the effective size of the LMS sample because of the effect of clustering.
- The clustering effect increases linearly with the number of cases selected in each OA
- The clustering effect varies between variables: variables with a higher homogeneity within an OA (eg ethnicity), have a higher clustering effect.
- The homogeneity coefficient of a variable can be estimated from data

4.2 Simulations

We assessed the combined effect of stratification and the sample design that is being considered for the 2020 PCS test by computing the design effect that results from weight variation.

The list of OAs is partitioned into 6 over-coverage strata and the sample of OAs is allocated optimally for PCS use across the strata; the sampling fractions relative to that in the first stratum are given in *Table 4*. We can see that strata 2 and 3 are nearly equally sampled whereas stratum 6 is heavily sampled - its sampling fraction of OAs is six times higher than that in stratum 1.

Six different designs, varying in terms of the total number of selected OAs and the number of achieved cases per OA, were considered. The design effect values from weight variation are given in *Table 5*. The design effects of the different designs are quite similar, varying only between 1.27 and 1.30.

Table 4. Relative Sampling fractions across strata

Stratum	Total No. of OAs	Relative Sample Proportion
1	30854	1
2	54014	1.08
3	38261	1.09
4	31595	1.61
5	19622	2.37
6	6923	6

Table 5. Design effect from weight variation in proposed PCS test samples

Design (Cases, Clusters)	Sample Size	Precision	Design effect (LMS)
(3, 1700)	5,100	0.99%	1.28
(6, 950)	5,700	0.96%	1.30
(9, 650)	5,850	0.97%	1.29
(12, 500)	6,000	1.00%	1.27
(15, 429)	6,435	0.96%	1.27
(20, 350)	7,000	0.96%	1.27
(25, 312)	7,800	0.98%	1.28
(28, 273)	7,644	1.00%	1.30

Potential ways of reducing the contribution of differential weighting to the design effect include selecting the OAs with a probability proportional to their size (PPS) and then selecting a fixed number of cases in each OA; or selecting the OAs using simple random sampling, and within each OA selecting a number of cases that is proportional to the size of the OA. Achieving equal weights in the design (15,429) will see its design effect decrease from 1.27 to 1.20. We plan to sample OAs PPS within each stratum in the 2020 test as it is more convenient for fielwork planning.

The effect of clustering is expected to vary between variables; it should be high for ethnicity and low for health. We will use data from Census 2011 to compute the intra-correlation coefficients, which will allow us to compute the clustering effect, for all census variables that are equivalent, or proxy, to varables collected in social surveys.

Obtaining the combined design effect, from weight variation and clustering, will allow us to choose which design has the highest effective sample size for LMS. The designs (3,1700) and (28,273) should have the lowest and highest combined design effects, respectively as the effect of clustering increases with the sample size in an OA. Given that the different designs vary little in terms of precision for population estimates, the design with the highest effective sample size, which is defined as the ratio of the total sample size to the combined design effect, will be chosen for the 2020 test, provided it is cost-effective for fieldwork.

4.3 Length of field period

Introducing an online mode to surveys requires a longer fieldwork period to allow for the transition between modes. Currently, the LFS has a fieldwork period of 2 weeks. In the most recent mixed mode integrated test the field period was 8 weeks (2 weeks online only, followed by 6 weeks Face-to-Face and Online). There is a concern that lengthening the field period will result in a clustering effect in the distribution of data collection which will have a negative effect on the quality of the data. Data from the recent test will offer an opportunity to explore the impact of lengthening the reference period and provide further evidence to determine the optimum field length, both for each mode and overall.

4.4 Reference period

Current social surveys use various reference periods within their design, for example, the current LFS design uses a fixed reference week, whereas the Crime Survey uses a reference period of the last 12 months.

Introducing an online mode to the integrated LMS and PCS requires a longer fieldwork period, meaning a fixed reference week would be cognitively challenging in terms of re-call for those completing the survey at the end of the fieldwork period. We have therefore taken the decision to use a rolling reference week, based on the week prior to the date the household commences data collection.

Data from the recent IPACS test will offer an opportunity to explore the impact of this change. For example, is there an equal distribution of reference weeks, are there seasonal variations and are there variations between modes?

In addition to this, we also need to consider if an IPACS would require all subsurveys to have a harmonised reference period, and if/how this would be possible? What implications would different reference periods have for cross-analysis?

4.5 Calibration under an Integrated Population and Characteristics Survey (IPACS)

Calibration is the method that adjusts the weights assigned to survey sample members in order to satisfy (or approximately satisfy) some pre-determined constraints. The most commonly used constraints involve (assumed) known **fixed** population totals. In the LFS, and all other ONS surveys, the response dataset is calibrated to mid-year population estimates (MYEs) by age, sex and geography (down to Local Authority level). MYEs are based on Census data which are updated using mostly administrative data and are hence independent of ONS household surveys. The key idea is that estimates formed from the weighted sample should replicate the **known** values from other sources.

In the proposed IPACS, the survey is used to estimate the population totals, so they are **estimated** (not fixed) and not independent of the survey. We have sought initial methodological assurance on our proposals and have received advice that our approach is possible provided some key assumptions are satisfied. The critical point is that the estimated population totals, derived from the population estimation framework and used in calibration, have to be nearly **unbiased (we aim to achieve levels of bias that do not exceed 0.5%, which is a census quality aim)**. While the methodology is unspecified it is hard to comment on how far this can be achieved. However, it is known that bias is particularly problematic when there is nonresponse. Work is planned to explore the correlation in non-response between administrative data sources and surveys. If there is no correlation between the two sources, then lower response rates will be less of an issue. However, if the two are correlated a high response rate in the master sample is essential, as it is the case with current Census Coverage Survey. This will be problematic for a **voluntary** survey. Testing to date has achieved a response rate around 60% suggesting a need to consider mandating the survey.

4.6 Multivariate analysis requirements

As user engagement progresses and we begin to understand more about the residual survey requirements, it will be important to work out the required sample size for the “master wave” that will satisfy sub-sampling and longitudinal requirements, with unbiased estimates and small variance. It will also be necessary to consider the ‘construction’ of our IPACS. For example, whether we will follow the approach described by Karlberg (2015) (i.e. the ‘instrument’ and ‘module’ approach) or an alternative.

4.7 Communal Establishments

Sampling the Communal Establishment (CE) population is an essential requirement for Population & Migration Statistics. Information on CEs is currently collected via the Census every 10 years through the building of its own CE address register, a costly and time-consuming exercise. The CE population is not currently captured in ONS Social Surveys. In 2008 ONS conducted a pilot Communal Establishment Survey. However, the pilot found considerable difficulties in identifying CEs as there was lack of an adequate sampling frame at the time. Furthermore, the practical difficulties of accessing respondents within the CEs resulted in an unacceptable level of non-response. However, it would be worth re-visiting this approach based on AddressBase and alternative survey modes.

4.8 Estimation Framework

We are yet to determine the estimation framework for producing admin-based population estimates. A review of methods is in progress, largely focusing on variants of DSE. While measures of variance can be obtained from the survey, we still need to consider methods for bias assessment. We also need to consider the impact of linkage errors, both in constructing the SPD and linking the SPD to the integrated survey. Similar to the requirement for very high-quality Census and CCS matching, our assumption is that linkage between the SPD and the survey will need to be undertaken with very few false positives or false negatives minimum errors. This may be more difficult to achieve with lags on administrative records regarding people's address information.

4.9 Summary

The IPACS is a central part of plans to transform social surveys at ONS. While there is considerable focus on modernising the collection of social surveys to support the ONS 'admin data first' approach, the decision to move towards a multi-purpose survey that combines LFS topics with new requirements for coverage assessment poses significant methodological challenges. A robust test plan is needed to prove the viability of the survey and provide the necessary evidence to support the recommendation for future Censuses in England and Wales which will be made in 2023.

We are currently aiming to commence testing for a parallel run in 2020, with the IPACS running concurrently with the existing LFS. The IPACS test will need to start relatively small in 2020, with the aim of collecting sufficient data to produce research outputs on admin based population estimates at the national level. Between 2020 and 2023 the IPACS will gradually increase up to full scale, with 500,000 households sampled per annum. In addition to the methodological challenges described in this paper, the operational delivery of a test of this magnitude also presents a challenge. We are exploring options for delivering the operational systems needed to support collection as well as the strategy for increasing the level of field force capacity needed to run two large surveys concurrently over a three year period.

References

Karlberg, M., Reis, F., Calizzani, C., & Gras, F. (2015). *"A toolbox for a modular design and pooled analysis of sample survey programmes*". Statistical Journal of the IAOS, 31, 447-462

Hall, Gibbs, Carter, Das, You, Minshall (2017) "*Options for integrating Statistics New Zealand's household surveys with a large-scale attribute survey*"

Predicting patterns of household non-response in the 2011census, ONS (2011), http://www.ons.gov.uk/ons/guide-method/census/2011/the-2011-census/processing-the-information/statistical-methodology/predicting-patterns-of-household-non-response-in-the-2011-census.pdf

Annex D: Roles and Responsibilities for Project Delivery

- **Accounting Officer** – accountable to Parliament for how public money is spent by ONS. Chairs the Executive Committee.
- **Senior Responsible Owner (SRO)** – has delegated authority (via an SRO appointment letter) from the Accounting Officer, and in the case of the Government Major Projects Portfolio (GMPP), from HMT to run projects/programmes according to best practice and in line with HMT guidance on the use of public money. The SRO of a GMPP programme is accountable to Parliament for the performance of the programme and ensuring it meets the needs of the business as set out in the business case.
- **Director of Finance, Planning and Performance** is responsible for ensuring that public money is safeguarded and used appropriately and efficiently, advising the Accounting Officer in this regard.
- **The Planning & Portfolio Management Division** supports executive governance by advising on the processes and structures to enable successful portfolio management and associated decision making. They present the monthly portfolio scorecard along with insights drawn from trend analysis and lessons learned. They provide project delivery support to the organisation aligned to conventional project delivery standards. Regular engagement with project delivery staff takes place to ensure these processes and practices are understood.
- **Key Holders** support decision making by providing assurance on business cases at appropriate staged gates.
- **Programme Management Offices** are set up to support the SROs of significant programmes. These are situated within the directorates from which the programmes are being delivered.