



Methodological Briefing: The Representativeness of Understanding Society



AUTHORS

Michaela Benzeval
Jonathan Burton
University of Essex

Christopher R. Bollinger
University of Kentucky

Thomas F. Crossley
European University Institute



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Data note

Understanding Society, University of Essex. Institute for Social and Economic Research, NatCen Social Research, Kantar Public. (2018). *Understanding Society: Waves 1-8, 2009-2017 and Harmonised BHPS: Waves 1-18, 1991-2009*. [data collection]. 11th Edition. UK Data Service. SN: 6614, <http://doi.org/10.5255/UKDA-SN-6614-12>

Data are also employed from:

| | |
|--|---|
| <i>Citizenship Survey</i> | https://data.gov.uk/dataset/35e2046b-f00b-46e0-b50d52fcd1938651/citizenship-survey-latest |
| <i>English Longitudinal Study of Ageing</i> | https://www.elsa-project.ac.uk/ |
| <i>European Social Survey</i> | https://www.europeansocialsurvey.org/ |
| <i>Family Resource Survey</i> | https://www.gov.uk/government/collections/family-resources-survey--2 |
| <i>German Socioeconomic Panel Study</i> | https://www.diw.de/en/soep |
| <i>Household, Income and Labour Dynamics in Australia (HILDA) Survey</i> | https://melbourneinstitute.unimelb.edu.au/hilda |
| <i>households below average income (HBAI)</i> | https://www.gov.uk/government/collections/households-below-averageincome-hbai--2 |
| <i>Labour Force Survey</i> | https://www.ons.gov.uk/surveys/informationforhouseholdsandindividuals/householdandindividualsurveys/labourforcesurvey |
| <i>ONS Annual Population Survey</i> | https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/annualpopulationsurveyapsqmi |
| <i>ONS mid-year population estimates</i> | https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates |
| <i>Opinion & Lifestyle Survey</i> | https://www.ons.gov.uk/surveys/informationforhouseholdsandindividuals/householdandindividualsurveys/opinionsandlifestylesurvey |
| <i>Panel Study of Income Dynamics</i> | https://psidonline.isr.umich.edu/ |
| <i>Swiss Household Panel Survey</i> | https://forscenter.ch/projects/swiss-household-panel/ |
| <i>Wealth and Assets Survey</i> | https://data.gov.uk/dataset/39747a1d-1c59-47e7-9c7d8a6a663c28ec/wealth-and-assets-experimental |

Executive Summary

“Representativeness” has a multitude of definitions. In *Understanding Society* we believe two representativeness goals are important:

- *To enable population inferences*
- *To ensure sufficient heterogeneity in the sample* to enable subpopulation analyses of interest and the estimation of a wide range of associations, gradients and causal relationships between and within subpopulations.

This review brings together existing and new evidence about how well *Understanding Society* achieves both of these goals. Briefly:

- Overall, *Understanding Society’s* initial and wave-on-wave response rates are comparable, if not better than most other UK surveys. However, comparing *Understanding Society* to other household panel studies internationally, attrition at Wave 2 in particular, was higher for *Understanding Society* but this may reflect it starting in a later period and/or different study designs
- Comparing Wave 8 estimates of key characteristics of the whole sample to relevant benchmark datasets, weighted estimates from *Understanding Society* are relatively accurate. Although there appears to be a slight underestimate of younger age groups, those living in London and some ethnic minority groups
- One useful aspect of *Understanding Society’s design* is the flow of individuals that join or re-join households in the sample over time, which means that members of groups that are not included in the initial sampling frame (such as residents of institutions) will flow into the study over time. Examining a number of such groups - children in care, prisoners, etc. - we find that a small number of individuals flow into these groups each wave. For many analyses, therefore, it will be feasible to pool observations across waves, and obtain a useful sample of key ‘missing populations’
- Finally, the role of temporary sample members (people who move in with original sample members) in representing ‘missing populations’ is reviewed. Such participants do over-represent some key policy groups, such as recent European migrants; continuing to follow them once they leave the household, therefore, may provide valuable data for policy learning.

In the final section we identify a number of actions we are either in the process of implementing, for which we have bid for funding or that we propose developing in the light of these reviews.

Action 1: If funded, implement general population boost at Wave 13 designing it to maximize its benefits to data users

Action 2: In due course, undertake analyses of ethnic minority groups in the sample against 2021 Census to plan Wave 18 Immigrant and Ethnic Minority boost strategy (*w16-18 bid due early 2022*).

Action 3: Implement and evaluate initiatives to improve response/reduce response bias; roll out those that are cost effective. We will then be building on internal and external learning to design a subsequent phase of initiatives to test.

Action 4: Implement and evaluate the initiatives to re-engage lost participants, monitor short- and longer-term re-engagement in the Study.

Action 5: to improve our new entrant and leaver data collection to capture more effectively moves in and out of institutions and lifetime histories of key statuses such as being in care as a child.

Action 6: to design and undertake first wave of data collection on the institutional exit survey in 2020. To evaluate the success of the survey in terms of response rates, ongoing contact details and whether substantive information can be collected that is useful to researchers, adapt and develop the second wave of the survey in the light of these experiences.

Action 7: to design our contact approach and data collection for couples who live apart together (LATS) in 2020. To hold a workshop on our approach and the content of our first co-parenting survey late 2020, potentially experiment with proposed questionnaire content in 2021 to field survey fully alongside Wave 14. Evaluate processes and build into the design of Wave 15. In due course consider rolling out to other 'significant others' such as the other half of caring dyads.

Action 8: to design and undertake first wave of data collection on the emigrant surveys. To evaluate the success of the survey in terms of response rates, ongoing contact details and whether the substantive information that is useful to researchers, develop the second wave of the survey in the light of these experiences.

Action 9: Further review Temporary Sample Members' reasons for joining and leaving study with improved data, identify those that fall into priority groups when they leave the sample (e.g. co-parents) and seek to continue to engage them in data collection.

What Do We Mean by Representativeness?

The Many Meanings of Representative

A central strand to the ESRC Longitudinal Studies Review (Davis-Kean *et al*, 2017) was that representativeness is a key defining requirement of any longitudinal study. It was seen of particular importance to policy relevant research, where longitudinal studies need to represent the rapidly changing UK population. However, the Review acknowledged that the:

representativeness concept is itself not a well-defined' but one that requires clarification when applied to a given sample, particularly regarding the definition of the population from which the sample is drawn ("representative of what?"), and also the characteristics of that population that can be inferred from the sample data ("representative for what?"). It can be seen that the concepts of representativeness and external validity are closely related, p.21.

This is not a new problem. It has long been the case that the phrases "representativeness" (of a data set) or "representative sample" are often used, but with little or no consistency in meaning or definition. For example, Kruskal and Mosteller (1979a,b,c, 1980) discussed this lack of clarity in a well-known series of articles some 40 years ago. Remarkably, Kruskal and Mosteller identify *nine* different ways in which the phrase "representative sample" is used in statistical and applied research literatures.¹ They conclude that the term might best be avoided, a conclusion echoed more recently by Lethonen (2015). However, the fact the term did not disappear from use over those 35 years – or in the years since Lethonen's article – suggests that it is here to stay. We begin therefore, by clarifying what we mean.

Our view is that a longitudinal study should strive to be "representative" in two senses:

- *They should support population inferences* (bearing in mind that target populations need to be carefully defined). This means the sample members should, at least in part, be selected from the target population with known or credibly estimated probabilities, so that the well-developed statistical methodologies for population inferences from probability samples may be brought to bear.
- *To ensure sufficient heterogeneity in the sample* to enable subpopulation analyses of interest and the estimation of a wide range of associations, gradients and causal relationships between and within those subpopulations.

These aims are also echoed in the Longitudinal Review. The Review argued that studies should be representative of the (or a target) UK population, and capable of dynamically representing this population. However, there was a concern, particular expressed among policy makers, that general population studies were not adequately covering specific populations of policy concern (e.g. looked after children, prisoners or homeless persons), nor able to generate representative data on each of the devolved nations or smaller regional geographies. Often this is a consequence of the way general population studies are designed, for example, being sampled from households they will not capture individuals from institutions, or sample sizes are not adequate for examining local geographies in detail. The Review suggested that these 'structural holes' missing or unreliable information on particular

¹ The complete list is: General acclaim for data; Absence of selective forces; Miniature of the population; Typical or ideal cases; Coverage of the population; Vague term, to be made precise; Representative sampling as a specific sampling method; Representative sampling as permitting good estimation; Representative sampling as good enough for a particular purpose.

subgroups in society, such as recent birth cohorts, the populations in the devolved nations, particular regions or localities, or high-risk populations required more flexible study designs.

It is worth noting that a sample does not need to be a simple random sample, or a “miniature of the population” to support population inferences. Unbiased estimates can be obtained from biased samples, most obviously through the use of sample weights. Thus, our first desired “representativeness” could be consistent with some types of “purposive sampling” (Goldstein, 2005), in particular over-sampling to increase heterogeneity in the sample and provide usable sample sizes for subgroups of interest. What is necessary is that inclusion probabilities are known or can be credibly estimated. As noted above this is often referred to as a probability sample (Lynn, 2005).²

There exist, however, inherent tensions between the different aspects of “representativeness” that a study may seek to enhance and maintain. For example, attempts to over-sample or otherwise capture small subgroups will generally mean, for a given total sample size, less precise estimates of quantities and associations in the full population. See Box 1 for further discussion.

² Other types of purposive sampling, such as quota sampling, would deliver a sample that is representative in this sense only under very strong, and normally implausible, assumptions (essentially that inclusion in the sample is random conditional on the characteristics used to define the quotas. Convenience sampling will of course not deliver a sample with known or credibly estimated sample inclusion probabilities.

Box 1: Trade-offs between different aspects of representativeness.

Consider a simple example of a cross-sectional survey of a population comprised of two groups, a larger group A, which is 90% of the population, and a smaller group B that is the remaining 10% (these might be regions or ethnicities). Suppose the survey collects information on years of education, earnings and group membership. How should the sample be drawn?

If the research aim is to estimate whole population quantities and associations (for example population mean earnings or the association between education and income in the full population) then the most precise estimates will typically be obtained if all members of the population (and in particular individuals in groups A and B.) have equal probability of inclusion in the sample. This would mean that 90% of the sample would be from group A.

If instead the research aim is to estimate income differences between the two groups, then the most precise estimates are obtained from a sample containing equal numbers from groups A and B (50% from each).³ This implies that individuals are sampled with probabilities inversely related to the prevalence in the population. That is, a sample that is more heterogeneous than the population will deliver more precise estimates of this difference.

Moreover, a simple random sample of the population might result in a sample that contains insufficient observations from group B to support subgroup analysis (for example, to estimate the relationship between education and income *within* group B). Of course, if the research aims were *only* to estimate quantities or associations within group B, the most efficient sample would be drawn entirely from that group. However, with large longitudinal studies, we are typically interested in a wide range of analyses and would not go to this extreme.

In sum, either a desire to compare groups or to study the smaller group suggests a sampling strategy that over-samples the latter – a sample that amplifies the heterogeneity of in the population. This of course diminishes the (unweighted) correspondence of the sample to the full population. Of course, so long as sampling probabilities are known (or can be credibly estimated), consistent estimates of population quantities can still be obtained, with appropriate use of inverse probability weights, or other statistical methods. But, in general, the more unequal the sampling probabilities are, the less precise those population estimates will be. Thus, to be more representative in the sense enhancing heterogeneity and supporting the analysis of subgroups may require a study to be less representative in the sense of (unweighted) correspondence to underlying population. Weights and other statistical methods can help recover full population quantities and associations from an unbalanced sample, but they do generally involve a loss of precision.

As second point to make about subgroup analysis and the study of associations and relationships is that we often don't know in advance which subgroups or relationships will be of scientific or policy interest in future. In the example in Box 1 it assumed that there is one natural subdivision of the population, and this is known in advance. In practice, it is almost impossible to predict which groups will be of particular interest in the future (Lynn, 2015). This is an important rationale for prioritizing full population representativeness in initial samples and boost samples, and for using deliberate over-sampling judiciously.

³ Under the natural starting assumption of common variances.

Longitudinal versus Cross Sectional Representativeness

The discussion above applies generically to surveys, including cross-sectional ones. A particular challenge of longitudinal studies is to define the population about which it should be possible to draw inferences. Lynn (2015) suggests that the population we are ultimately interested – what he refers to as the “policy population” is typically not a population that can be observed at all. Rather, it is some future population to which a policy might be addressed. In the case of an up-to-date cross-sectional survey, we might hope that there is only a small gap between the policy population and the current population to which it supports inferences. For longitudinal studies, there are further difficulties, both conceptual and practical. The main rationale for a longitudinal study is to investigate dynamic relationships. Such relationships can only exist at (at least) two points in time, and can only be estimated on samples covering multiple periods.

A key point to make is that cross sectional representativeness and longitudinal representativeness are distinct. For example, suppose that one is interested in the relationship between the experience of poverty in childhood and adult health. The study population of interest might be children currently living in the UK who will also live in the UK as adults in the future. We would like to know how poverty will affect their long run outcomes – and how reductions in poverty exposure might improve those outcomes. At best, this relationship might be estimated from a sample of children who lived in the UK a generation ago, and are still resident adults today. The population captured by this sample might be significantly different from the current policy population. Institutions and policies have changed in the interim. Moreover, the composition of the population of adults today will include the children of recent immigrants and these will by definition not have been part of the population of children a generation ago.

Attempts to update and maintain the cross-sectional representativeness of a longitudinal study will not necessarily diminish the gap between a longitudinal policy population and the population about which inferences can be drawn. In the example above, the population we can draw inferences about is the population of individuals who were children a generation ago, are adults now, and resided in the UK at both points in time. The policy population is current UK children and their future selves (or perhaps the subset of those who will continue to reside in the UK.) Boost samples can be added to studies to include recent immigrants, which helps improve cross-sectional representativeness, and subsequent longitudinal analyses. Retrospective histories may be added to enable longitudinal analyses that include the boost members to answer some questions for the current policy population, but it is likely that this will only partially be possible.

Summary

We have defined “representativeness” in terms of the ability to support overall population inferences and subpopulation inferences, associations and causal relationships at the same time. We have noted some challenges that need to be balanced to achieve this, for example between population coverage and precision and between cross-sectional and longitudinal populations of interest. We next offer some comments on how representativeness should be assessed. Subsequent sections review existing and new evidence on the representativeness of *Understanding Society* in these two dimensions. We then concluded by discussing current and planned initiatives to enhance the representativeness of *Understanding Society*.

How Should We Assess Representativeness?

How then should the “representativeness” of a study or data source be assessed. Typically, two types of evidence have been put forward. One is reports of response rates, and in longitudinal studies, retention

(or attrition) rates. (In what follows we use “response rate” generically, to cover both initial response and continued retention). Response rates have the virtue of being a study-level measure, but they have significant limitations as measures of data quality. We are also concerned with nonresponse bias, and the two can be related in complex ways. Often a higher response is taken to mean less bias, but as Groves (2006) points out, if a higher response rate is achieved through methods that attract unusual respondents, this can actually *increase* bias.

If our focus is the estimation of population quantities from our survey, then lower response rates create a *risk* of nonresponse bias. However, bias in a particular estimate depends on both response rates *and* the correlation between response probabilities and the survey items used in that estimate. As a consequence, lower response rates do not necessarily imply greater bias; non-response bias will be estimate-specific (even though the response rate is study-level characteristic.) In fact, in a careful meta-analysis Grove (2006) shows that there is very little correlation *across* surveys between response bias and response rate, and that most of the variation in nonresponse bias is *within* surveys (that is, across estimates). This has led the survey methods literature to move away from response rates as measures of data quality, and towards more direct measures of non-response bias. Kreuter, (2013) even argues that an undue focus on response rates can distract attention – and survey resources – from other sources of survey error.

A second point is that biases arising from differential nonresponse can, to a significant degree, be addressed through weighting (by the inverse of the probability that a unit is present in the sample) or other statistical methods. *Understanding Society* and other longitudinal studies provide state-of-the-art weights for users, based on careful modelling of the probability that a given respondent is selected and retained (Lynn and Kaminska, 2010). The key question then should be what biases remain after weights or other appropriate methods have been employed, and response rates provide very limited information on this point.

Nevertheless, we should remain concerned with response rates, and particularly differential response, for two reasons. First, the more differential response rates are, the more work survey weights (or other statistical methods) need to do. The second issue is precision. Nonresponse and attrition naturally reduce sample size. In addition, for a given sample size, a weighted estimate will, in general, be less precise the more variable the weights (or inclusion probabilities) are. Thus, differential response can lower precision both by decreasing sample size and by increasing the variation in inclusion probabilities. Although a great deal of discussion of response rates and attrition focuses on the risk of bias, loss of precision may be the more detrimental consequence for research.⁴

Similar considerations apply if the dimension of “representativeness” we are concerned with is capturing all groups, processes and relationships of interest. Subgroup estimates may be biased if response or retention are differential *within* the group, but disaggregated analyses of response correlations are not often reported. Loss of sample size and loss of precision are of even greater concern in the case of subgroup analysis, and some cases, subgroup analysis may not be feasible at all.

⁴ One response to the evidence that response rates are quite limited measures of data quality has been the development of alternative measures such as *R-indicators*. These measure sample balance, with respect to a set of covariates. While they have a number of attractive properties. They do not require external benchmarks and they capture the imbalance of the sample that generates both a risk of bias and a loss of precision. R-indicators for *Understanding Society* are under development. However, two points are notable. First, R-indicators are covariate-specific and so (like benchmarking) not a study-level quality measure. Second, they measure the unweighted imbalance of the sample and so (unlike benchmarking) are silent on the ability of the sample and appropriate weights to deliver unbiased estimates of population quantities. Thus, they may be more useful as an ongoing guide to field effort than as an overall measure of data quality, or especially, the ability of the study to provide unbiased estimated of population quantities.

The second common type of evidence on the quality of surveys, including longitudinal studies, is the comparison of (possibly weighted) estimates to external benchmarks. This type of evidence has the virtue of being a direct measure of a dimension of quality that we care about, namely bias. Against this are a number of obvious drawbacks. First, it is necessarily an item-specific measure of quality, and some stakeholders may desire study-level measures. Second, it requires that suitable benchmarks exist. Administrative and Census data can provide such benchmarks, but these will only cover some survey items, and some points in time. Other surveys or estimates are sometimes used as benchmarks. For example, in the UK, the *Family Resources Survey* and related households below average incomes (HBAI) dataset are sometimes used as benchmarks for income statistics; the ONS' mid-year population estimates are sometimes used as benchmarks for demographic variables. It is important in these cases to remember that the benchmark is an estimate, and so subject to uncertainty (even if that uncertainty is not reported with an explicit standard error or confidence interval). Differences between a survey quantity and an estimated benchmark should be considered in light of the likely uncertainty in both sides of the comparison. Finally, by design longitudinal studies often aim to represent longitudinal populations: for example, the population that would have evolved (through births, deaths and emigration) from the population at the time of the last boost sample (but notably excluding more recent immigrants). Benchmarks at a single point time will not correspond to a longitudinal population. For example, if benchmarks are based on censuses or cross-sectional surveys that include recent immigrants, an adjustment may be required for the comparison to a longitudinal study. With these caveats in mind, we now turn to surveying existing evidence, and some new evidence, on different aspects of the “representativeness” of *Understanding Society*. The evidence is in the form of response and retention rates, as well as achieved sample sizes and comparisons with external benchmarks.

Population Inferences

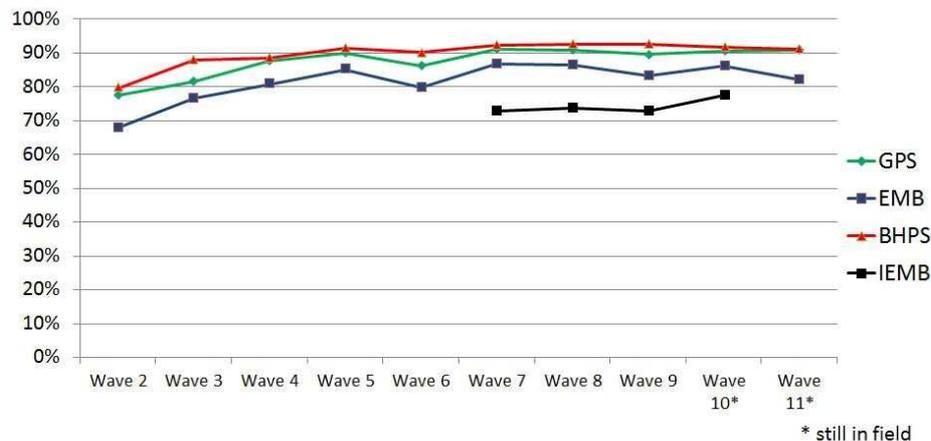
Response Rates

As noted above, response rates are a fundamental measure of a study's quality. Given this, basic response rates by individuals and households for each sample, for each wave, cross-sectionally and cumulatively, and by mode, together with reasons for non-response (refusal, died, moved out of scope etc.) are reported annually in our user guide (Knies, 2018).

The overall proportion of sampled households who took part in the survey at Wave 1 was 57.3% in the general population sample (GPS) and 52.0% in the Ethnic Minority Boost sample (EMBS) (Lynn *et al*, 2012). The most up-to-date response rates for subsequent waves by the different *Understanding Society* samples are shown in Figure 1. As can be seen, at Wave 2 the General Population Sample (GPS) and the former *British Household Panel Survey* (BHPS) had achieved response rates for previous wave responders of around 80%, these steadily increased to Wave 5 when they stabilised at around 90%. There was a downward blip at Wave 6, we believe associated with a change in fieldwork agency at that wave. The EMBS response rate for previous wave responders at Wave 2 was just under 70%. This increased to 85% by Wave 5, with a blip again at Wave 6, before returning to rates around 86%. The Immigrant and ethnic minority boost (IEMB), which began in Wave 6, has had a relatively stable response rate for previous responders around 72%. Figure 1: household response rates for each sample of *Understanding Society*, to September 2019

Household response

(completed previous-wave responding households, *still in field)



To put this *Understanding Society* response pattern in context, we are currently carrying out some research on response patterns in other studies: Wave 1 and other UK cross-sectional surveys that started about the same time; other UK longitudinal studies; and other household panel surveys around the world (Burton, 2017). As Box 2 shows *Understanding Society* GPS sample response rate at Wave 1 (2009/10) of 57.3% is quite comparable to *Family Resource Survey*, 2010 (60.1%), the *European Social Survey* 2010 (56.3%) or Wave 1 of the *Wealth and Assets Survey* in 2006-8 (54.6%). Comparing *Understanding Society* to other UK longitudinal household surveys, it has experienced less attrition than the *Labour Force Survey* and the *Wealth and Assets Survey*, and is similar to *English Longitudinal Study of Ageing*, although the latter study is restricted to those over the age of 50 years. However, comparing *Understanding Society* to other household panel studies internationally, attrition at Wave 2 in particular, was higher for *Understanding Society* but this may reflect it starting in a later period and/or different study designs.

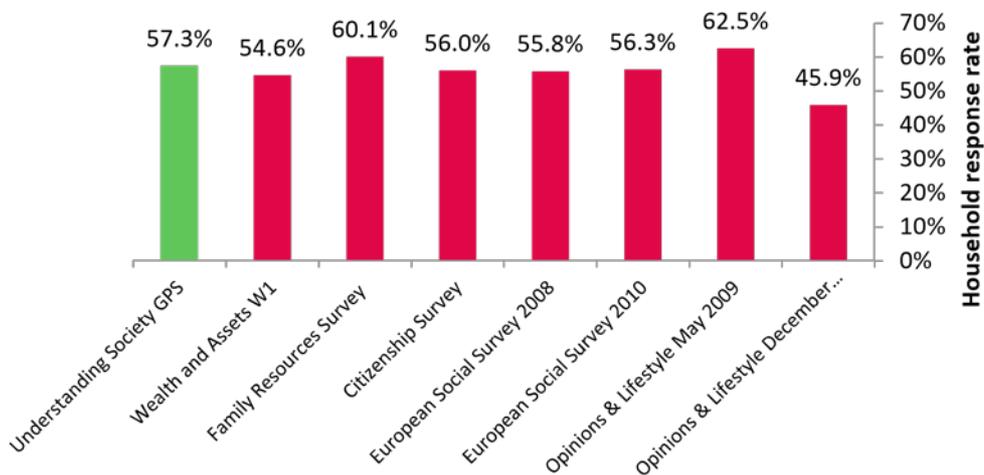
Box 2: Understanding Society’s response rates in Context

Understanding Society has achieved high response rates since its inception. Below we briefly summaries some key comparisons both within the UK and internationally.

UK cross-sectional surveys

Comparing Wave 1 Understanding Society cross-sectional response rate for the general population sample (57.3%) to other national studies, the figure below shows the response rate was not significantly out of line. Probably the most comparable two surveys are the *Wealth and Assets Survey* and the *Family Resource Survey*. The first wave of the *Wealth and Assets Survey*, carried out 2006–2008, like *Understanding Society* aimed to interview all adults in the household achieved a response rate of 54.8%. Similarly, the *Family Resource Survey* (FRS) also aims to interview all adults in the household, in the 2009/2010 survey the household response rate (full and partial households) was 60.1%.

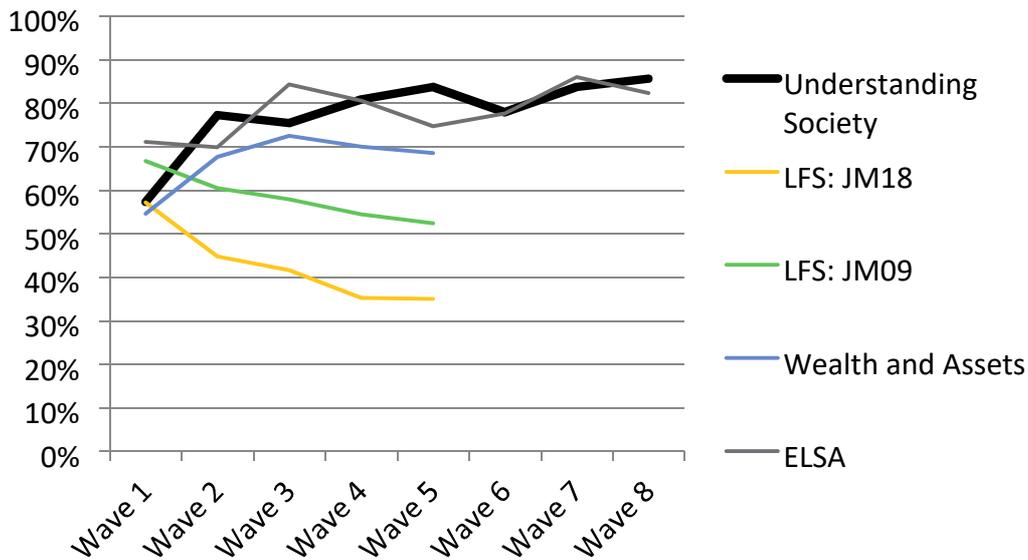
Cross-sectional Wave 1 response rate for Understanding Society compared to other UK surveys



UK longitudinal surveys

Turning to the other longitudinal studies, there are no directly comparable surveys in the UK that aim to interview all adults in a household annually. However, the figure below compares *Understanding Society*, to a selection of longitudinal studies, which have a household focus and in general cover the whole population rather than a specific birth cohort, but note that there may still be differences in design, sample composition and/or date.

Wave household response rates for UK longitudinal studies



For each study Burton tried to identify consistent response rates, defined as all eligible households issued at that wave as the denominator and the number of responding households (at least one adult interview) as the numerator. As can be seen *Understanding Society* compares favourably with other studies with its response rate climbing from 57.3% in Wave 1 to 83.7% in Wave 5 and 85.3% in Wave 8. In comparison the *Labour Force Survey* which began around the same time saw response rates declining from 66.1% in wave 1 to 52.4% in wave 5. The *Wealth and Assets Survey* which began in 2006/2008 had a Wave 1 response rate of 54.6%. It then followed a similar upward (but lower) trajectory to *Understanding Society*, but peaked at Wave 3, with a response rate of 72.5%, and then began to decline, with its most recent wave (5) 68.5%. Finally, the *English Longitudinal Study* (ELSA) has very similar response levels by wave to *Understanding Society*, however, its age group is limited to over 50s only.

Probably the most comparable design to *Understanding Society* are the other household panel studies worldwide, although given very different start dates, and hence response rate eras, direct comparisons are problematic. The *Panel Study of Income Dynamics* (PSID), which began in 1968 in the United States of America, saw extremely high individual re-interview rates every year (88.5% in Wave 2, and ranging between 96.9% and 98.5% each year after), until 1997 when the frequency of interviewing was changed to biennial, at which point the re-interview rates dropped by a couple of percentage points (93%-95%). The PSID do not report household response rates, only individual-level re-interview rates. Early indications are that the *Understanding Society* GPS sample individual re-interview rates are approaching 90% at Waves 8 and 9, which is lower than the PSID. Similarly, *Understanding Society* has response rates generally on par but slightly lower than a number of refreshment samples in the Australian (HILDA), Swiss or German panel studies. For example, at Wave 8 of *Understanding Society* the response rate was 85.6%, while for the 8th wave of the Swiss original panel (starting 1999) it was 87% and 90% for their refreshment sample which began in 2004. The eighth wave of the original HILDA sample (beginning 2001) had a response rate of 91.5%, while the 8th wave of the German refreshment sample which began in 2001 had a response rate of 88%. The differences in response rates between these international panel studies are small, and may be due in part to when the study began, as there is evidence that response rates in general are becoming more difficult to achieve (De Leeuw and de Heer, 2002; Schoeni *et al.* 2013) It may also be due to the ambitious nature of the study with a very large sample size, an ethnic minority boost sample, continuous interviewing throughout the year (and after the first year, having two, sometimes three, waves in the field simultaneously), and the relatively short timeframe available to get the survey designed and into the field.

Source Burton (2017)

As well as being interested in overall response rates, as discussed above, the response of specific subgroups in society are also crucial for the research opportunities that a study creates, and act as an indicator of the success of fieldwork. To examine this, Borkowska (2019) investigated response rates in different kinds of places based on the ONS 2009 Hard-To-Count Index (ONS, 2009) as described in Box 3. There was not an association between response rates and indicators of the economic conditions of an area at either Waves 1 or 8. However, there was a negative association at Wave 1 between the share of non-UK born and non-White British in an area and household response rate. This had disappeared by Wave 8, suggesting we were successful at maintaining contact with these groups once they were part of the Study.

Box 3: Response rates by Hard to Count areas

Borkowska (2019) investigated response rates in different kinds of places based on the ONS 2009 Hard-To-Count Index (HtC) (ONS, 2009) at Lower level Super Output Areas. The HtC was developed to predict nonresponse in the 2011 Census and used as the main tool for allocation of resources for the census field operations, broadly it includes two types of measures those related to the economic conditions and those related to mobility/population turnaround in the area.

Variables related to the economic condition of the area such as quintiles of economic inactivity, unemployment, share of JSA claimants, and Index of Multiple Deprivation were not related to the overall household response rate at Wave 1 but they seemed to be moderately associated with the nature of nonresponse. Economically worse-off areas tended to have a relatively higher rate of non-contact whereas better-off areas tended to have a relatively higher rate of refusals. This relationship between the nature of non-response and economic condition of the area was also noticeable at the latest wave (Wave 8) and resulted in a slightly lower overall household response-rate in less well-off areas. This suggests that people living in economically deprived areas might be more difficult to contact, but, once the successful contact is established, they are at least equally likely (or even slightly more likely) to agree to participate in a survey compared to those living in better-off areas.

In relation measures representing mobile populations, the results show that at wave 1, there was a moderate negative association between the share of non-UK born and non-White British in LSOA and household response rate. Most of this difference has been due to the higher rates of non-contact rather than refusal, which is not surprising given that such areas have higher turnaround of the population, which is likely to make the initial contact more challenging. Interestingly, at the latest wave (Wave 8), the negative association between the share of non-white British or foreign born in the area and response rate almost completely disappeared (except the quintile with the very highest share of either of these two groups, in which the response rate was slightly lower than in other areas). These results suggest that the field operations have been equally successful in re-contacting people living in highly mobile areas as in less mobile areas once the initial contact has been made. Another area characteristic modestly associated with lower household response rate at Wave 1 was relatively high dwelling density (up to 7 percentage point difference between the first and the last quintile). This is generally in line with the literature, which shows that people living in more busy places (e.g. big cities) are less likely to respond to surveys (ONS, 2009). Source: Borkowska (2019)

Comparisons to External Benchmarks

How well a study estimates match the population from which it is sampled is in part a reflection of the success of fieldwork and in part reflects the success of any weighting scheme in adequately adjusting survey estimates to reflect the population from which they were selected. In the original weighting

strategy for the Study (Lynn and Kaminska, 2010) a decision was taken to prioritize longitudinal weights. More recently, however, in recognition of the extent to which the Study is used cross-sectionally, we have revised our strategy, and are currently reconstructing our weighting procedures in a range of ways, including improving the cross-sectional weights. It is highly likely therefore that some of the small differences reported below, may be reduced further with the new weights.

A number of comparisons of the characteristics of *Understanding Society* to key benchmark data have been conducted since it began. Lynn and Borkowska (2018) showed that Wave 1 characteristics of the GPS sample were broadly comparable with estimates from the 2011 Census with some slight underestimates of men, those living in Greater London and people with severe limiting longstanding illness. We provided evidence to the *Longitudinal Studies Review* (Davis-Kean, 2017) that showed by Wave 6, compared to 2015 mid-year population estimates, the Study was still broadly similar to the UK population, especially for region and sex. However, even the weighted data showed slight underestimate of young adults and people of South Asian and Black ethnic groups. Box 4 shows the latest evidence comparing Wave 8 estimates of key characteristics of the whole sample to relevant benchmark datasets. Again, in general, weighted estimates for the Study are relatively comparable with key benchmarks. There continues to be a slight underestimate of younger age groups, those living in London and some ethnic minority groups.

Fisher (2019) compared the characteristics of mothers in *Understanding Society* with those in the ONS *Family Resources Survey*. He concludes that the two surveys give a remarkably similar picture of the broad characteristics of new mothers, showing that *Understanding Society* is representative of the UK population of new mums. In relation to living standards at Wave 1, *Understanding Society* mothers look very similar to the FRS ones in terms of age, household size, marital status, ethnicity and region.

Box 4: New evidence on the representativeness of *Understanding Society* compared to key population benchmarks

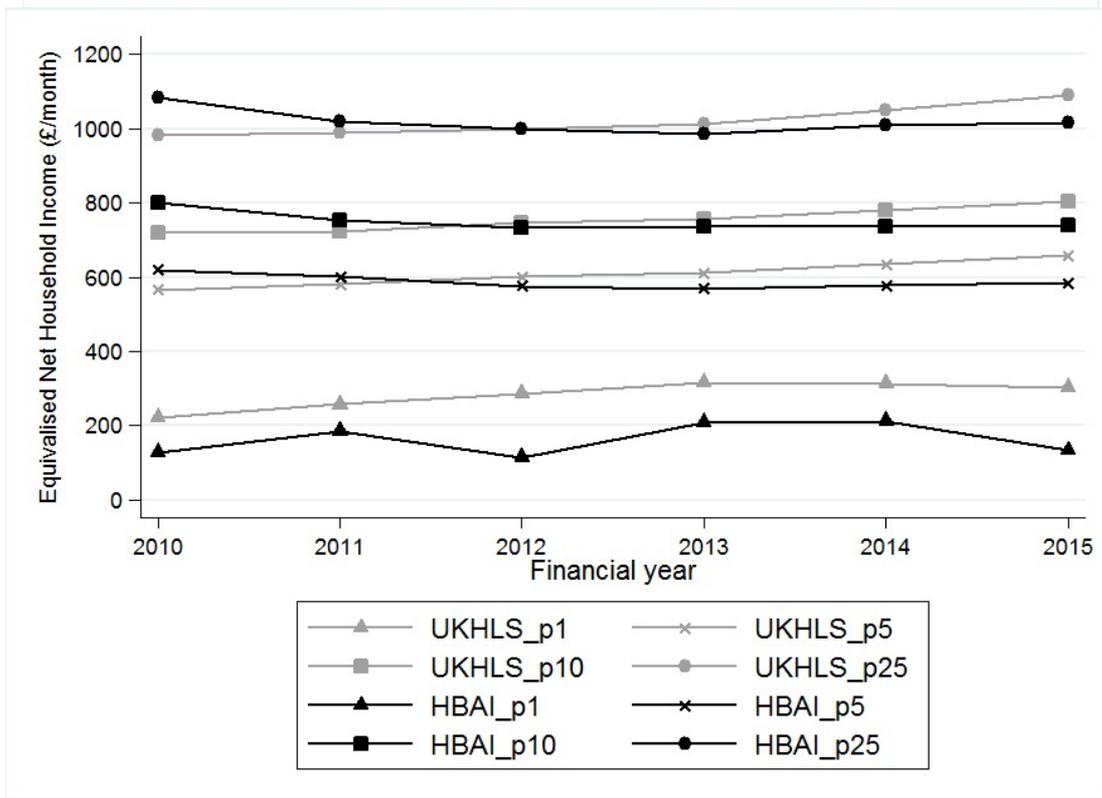
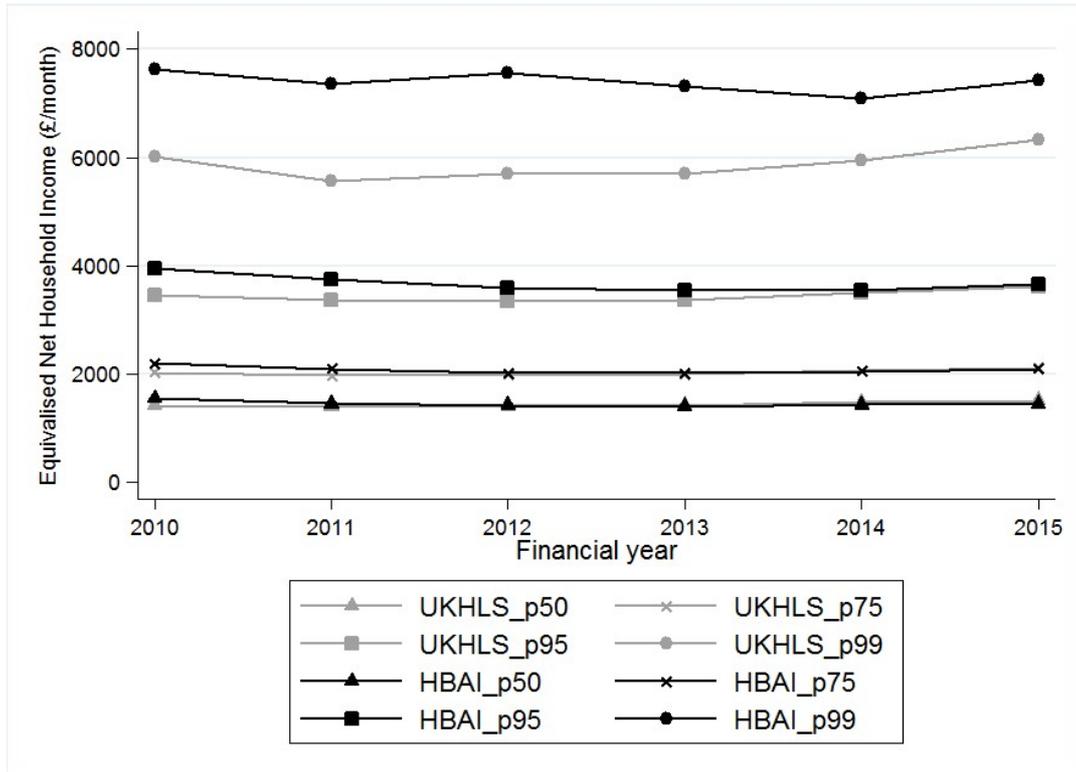
In order to assess the representativeness of Wave 8 sample, Borkowska (2019) compared the total weighted *Understanding Society* sample and: 2017 ONS mid-year population estimates for gender, age group, and region variables; the 2017 *Annual Population Survey* for ethnicity and the 2017 *Labour Force Survey* for economic activity. Overall, the Study continues to be cross-sectionally representative in terms of sex, age groups and geographical regions. There is a small underrepresentation (up to 2 percentage points) of younger age groups (under 40) and, small overrepresentation of older age groups (up to 1.5 percentage points) compared to 2017 annual population estimates. In terms of geography, there is a small underrepresentation of people living in London and small overrepresentation of people living in Yorkshire and the Humber (about 1 percentage point). Compared to the 2017 *Annual Population Survey*, Wave 8 of *Understanding Society* seems to have some underrepresentation of ethnic minority groups (less than 1 percentage point in case of Indian, Pakistani/Bangladeshi and Black/Black British groups) and some overrepresentation (about 1.5 percentage point) of the 'other category'. However, these differences may be explained by the differences in coding of the ethnicity variable. In relation to economic activity compared to the *Labour Force Survey*, from December 2016-February 2017, *Understanding Society* Wave 8 estimates differ up to 3.5 percentage points in terms of categories of economic activity, although again differences in definition are likely to explain some of the difference. It is also important to keep in mind that both 'ethnicity' and 'economic activity' benchmark estimates used are based on survey data and therefore are also subject to all potential sources of survey errors.

Source: Borkowska 2019

In addition to these broad comparisons of the *Understanding Society* samples, some research has also been conducted to investigate how well specific measures, particularly income, compare with external benchmarks. Fisher *et al* (2019) compare weighted income data in *Understanding Society* with the

official UK income distribution data *households below average income (HBAI)* which is based on the *Family Resources Survey*. There are a number of differences in survey practice, which need to be borne in mind (Fisher *et al.*, 2019). Nevertheless, as can be seen in Figure 2 *Understanding Society* matches the HBAI data well except it slightly overestimates income at the bottom of the distribution and underestimate it slightly at the top. This means that overall *Understanding Society* tends to have slightly lower inequality levels, proportionally more pensioners and household incomes contain a slightly larger share of state benefit income. It is important to note, as with some of the benchmark studies used elsewhere in this report, FRS is a survey, and hence suffers from survey errors such as nonresponse as well. Fisher *et al* 2019 were not able to look at income dynamic's as FRS does not allow such analysis.

Figure 2. Selected quantiles of household net income



In a wide-ranging analysis of labour markets and earnings from 1992 to 2016 Postel-Vinay and Sepahsalariz (2019) compare employment patterns across the BHPS and *Understanding Society* with ONS labour market data from the *Labour Force Survey* (LFS). They find that the aggregate trends in employment, unemployment and economic activity in BHPS/*Understanding Society* and LFS mirror each other well across the whole period, including the transition from BHPS to *Understanding Society*.

However, over the period the rates of self-employment diverge especially after 2003. However, they note that the two sources have different definitions of self-employment with the LFS including all adults while BHPS/*Understanding Society* are limited to 16-64 years old.

Hard-to-Reach groups and Missing Populations: the potential of flows

The Longitudinal Studies Review (Davis-Kean, 2017) identified ‘structural’ holes in many current studies: that there is a lack of coverage of high-risk populations such as prisoners, those in institutions, etc, and that such ‘missing populations’ were often of considerable interest to policy makers. Such groups are often not part of the frame from which the original sample for a panel study is drawn (for example, many panel studies use residential frames and so the original sample excludes residents of institutions, and the homeless). This concern echoes an increasing general recognition that those who are missing from surveys may be the most vulnerable and of particular policy importance (ODI, 2015).

One potentially useful, and perhaps over-looked, aspect of longitudinal studies – particularly panel studies such as *Understanding Society* - is the flow of individuals that join or re-join households in the sample over time. These flows mean that members of groups that are not included in the initial sampling frame (such as residents of institutions) will flow into the study over time.

There is a related point about small, but dynamic, groups. If a group of interest is actually a ‘state’ that individuals flow in and out of with some frequency, then even if the group is small at any point in time, a panel study will observe an increasing number of people who have passed through this state or group as the study matures. For example, the number of involuntary house-movers may be small in any year even in a study with a substantial sample size (like *Understanding Society*). However, over a number of years, different respondents will pass through that group, and by pooling years, a sample that supports analysis may be obtained.

Two recent analyses from the *Understanding Society* team explore ways we might take advantage of flows, either in and out of the sample, or in and out of groups of interest, to enhance the subpopulation representativeness of the Study.

Flows to and from “Missing Populations”

Borkowska (2019) studies flows from and to groups that may be out of scope or not captured by the sampling frame of *Understanding Society*. Her research strategy is to use external sources, particularly administrative sources to estimate how many individuals in each group should flow into the *Understanding Society* many each wave, or how many individuals in the sample should exit into these groups each wave. She then assesses how well *Understanding Society* captures these flows, and then finally discusses what can be done to improve the extent to which *Understanding Society* captures these flows.

The groups that Borkowska studied are:

- International migrants
- Children in care
- Individuals coming from or moving to institutions, and
- Individuals making involuntary house moves (one component of homelessness).

Her analysis is based on the total *Understanding Society* sample (including all components). She finds that the combination of: estimates of flows, the *Understanding Society* sample size, and the ability to cumulate sample across waves, suggests that in many cases analyzable samples should accumulate in the study over time.

Table 1 summarizes some results from Borkowska (2019). It presents, by wave, the cumulative number of individuals that are observed in foster care, and experiencing an involuntary house move. These numbers naturally increase with the number of waves. For example, the second column of Table 1 shows that by Wave 5, the study observed 174 unique individuals as a child in foster care for at least one wave. By Wave 8, this number has increased to 219. Of course, some of these unique individuals will have been observed in foster care in more than one wave, so the total number of person-wave observations is higher still. The third and fourth columns of Table 1 consider involuntary house moves. As these are transitions, they are first observed in Wave 2. Starting with involuntary house moves of all types, by Wave 5 333 unique individuals have experienced an involuntary house move, and by Wave 8 this number rises to 614 individuals (the number of household moves will obviously be less than this as some individuals will move as part of a household). Again, some of these individuals will have experienced more than one involuntary move, so the total number of transitions observed is higher still. The final column of Table 1 considers a subset of involuntary housing moves: evictions from rented accommodation. Even for this subgroup, by Wave 5 (cumulatively) we see 171 unique individuals and by Wave 8, 312 unique individuals. The numbers in Table 1 emphasize one of the powers of a panel study. Even if a small number of individuals experience a state or transition in a given wave, over waves the number of individuals observed in that state, or making that transition, will grow. For many analyses, it will be feasible to pool observations across waves, and obtain a useful sample. The samples captured in Table 1 could be the basis of useful research into foster care, and into involuntary house moves.

Table 1 Cumulative Unique Observations: Foster Children and Involuntary House Moves

| Wave | Foster Children | Involuntary House Moves (all types) | Evictions from Rented Accommodation |
|------|-----------------|-------------------------------------|-------------------------------------|
| 1 | 66 | | |
| 2 | 104 | 83 | 31 |
| 3 | 133 | 181 | 74 |
| 4 | 158 | 264 | 124 |
| 5 | 174 | 333 | 171 |
| 6 | 193 | 421 | 211 |
| 7 | 210 | 519 | 253 |
| 8 | 219 | 614 | 312 |

Unweighted frequencies. Figures derived from Tables 7 and 9 in Borkowska (2019)

Based on her quantitative analysis and her review of the current efforts by *Understanding Society* to track the destinations of leavers and to collect data from joiners, Borkowska (2019) makes a number of recommendations for improved leavers'/joiners' questions, and improved survey practices. We return to these in the final section below.

The Potential of Temporary Sample Members

Panel studies such as *Understanding Society* begin with a sample of a target population at a given time, drawn in such a way that the inclusion probability of each member of the sample can be calculated. This allows a large body of well-understood statistical methods to be employed to draw inferences about that population with confidence. In *Understanding Society* and similar studies, the initial sample includes all the members of a sample of households. These “Original Sample Members (OSM)” are followed, in principle, until they die or emigrate.

Households are dynamic: new members join, and households split (with existing members departing). This raises the question of whom studies should collect data from. All major household panel studies collect data from “joiners” as long as they live with a starter. One reason is that they provide important contextual information. For example, the material living standard of each household member depends on total household income. Thus, to get a complete picture of the living standards of starters, it is necessary to collect income information from joiners as well. *Understanding Society* does this, and “joiners” get the full interview as long as they live with OSMs.

However, across panel studies, including *Understanding Society*, “joiners” are not always followed if they cease to live with a starter. One reason is that field-work costs rise with the number of respondents followed. A second reason is that the inclusion probabilities of some kinds of joiners are difficult to calculate. This means it is hard to use them in estimates of population quantities that are obtained using standard statistical methods.

Methods have been worked out to assign inclusion probabilities to “joiners” who are born to (i.e., are babies of) OSMs based on the known inclusion probabilities of their parents. And so, *Understanding Society* (and other household panels) do this and follow some or all babies born to OSMs over time. Doing this in principle keeps the sample representative of the population as it changes over time, except for immigration (That is, it would maintain full population representativeness if the population was changing only due to deaths, births and emigration). In contrast, in many panel studies, including *Understanding Society*, individuals who join the household of an OSM via cohabitation are not followed beyond that period of cohabitation. In *Understanding Society*, these participants are called Temporary Sample Members (TSMs).

Despite the attendant costs, and the difficulties around calculating inclusion probabilities, expanding the Study’s rules to follow joiners beyond cohabitation, when they leave the OSM household, might be useful for a number of reasons.

1. TSMs can help maintain cross-sectional representativeness of a study. For example, if the original sample (or the last boost sample) is drawn at T time, immigrants who arrive in the country after that date will not be captured by the original sample or their children. Nevertheless, new immigrants may be an increasingly important part of the changing population, and of considerable policy interest. One way that new immigrants do enter the study (until a new boost sample) is through cohabitation with OSMs. Keeping TSMs in the study even if they cease to cohabit with an OSM can therefore increase the number of new immigrants in the sample.
2. Individuals who cohabit with an OSM might provide important contextual information even after they leave the household. For example, data from nonresident parents may be useful for understanding the lives of children who remain in the sample, and former cohabitants may continue to share financial resources with OSMs.
3. Expanding the following rules would increase sample size. In particular, it might increase the sample size of otherwise hard to reach sub-groups and therefore help to support sub-group analysis. This will be particularly true for mobile subgroups who join and leave households: for example, young people, home sharers and members of dissolved couples.

These benefits, and in particular the third one, hinge on two things:

- A. Whether TSMs not currently followed are disproportionately from such groups, and
- B. Whether TSMs, if followed, would good quality data

New analysis from Laura Fumagalli on the *Understanding Society* team (Fumagalli, 2019) seeks to answer these two questions, and so to assess the potential value of expanding the *Understanding Society*'s following rules.

Fumagalli finds, first, that following more TSMs would increase *Understanding Society*'s sample size (and so also costs), but not explosively. She also finds that TSMs are drawn disproportionately from interesting (mobile, hard-to-reach) groups. In particular, TSMs include significant numbers of:

- People who return home after a period of absence, which means they were not in the household when it was first sampled – for example students, people returning from living abroad, or from prison or other long term institutions.
- House-sharers (during or shortly after university).
- Recent European migrants.

This last group may be particularly policy- relevant currently because of BREXIT.

Turning to data quality, it is important to note that it is not possible to directly assess what data quality TSMs would provide if interviewed after leaving OSMs households. As they are not currently followed beyond cohabitation, there is no data on this. What Fumagalli did is to look at the quality of the data TSMs provide while still in an OSM household. From this one can make a reasonable conjecture about what they might do if asked to participate in the study after this period of cohabitation. While this evidence is indirect, it is reasonably positive.

- The presence of a TSM in a household does not increase cost of contacting that household.
- Once they give a full interview, TSMs give similar quality data to OSMs. This is true for various measures of data quality including item nonresponse; and interviewer assessments of respondent cooperation and understanding.
- One negative finding is that TSMs are much less likely than OSMs to give a full interview. They are more likely to be captured by proxy interview, or to refuse. If following rules were expanding to follow TSMs beyond their period of cohabitation with an OSM, maximizing the number of full interviews from these additional respondents would be an important field-work priority.

Source: Fumagalli (2019)

Current and Planned Initiatives in Understanding Society

In this section, we briefly outline plans and initiatives to improve the two 'representativeness' goals outlined above to provide excellent coverage of the whole population, and of important sub groups within it (even those not identifiable at the sampling stage).

Quinquennial boost samples

As identified above, over time, even with the high year-on-year response rates *Understanding Society* achieves, cumulative attrition reduces the sample size, and new immigrant populations who arrive in the country after the last sample was recruited (currently 2014-15) are not represented. To address these issues, we proposed in our bid for Waves 13-15, to add to *Understanding Society* a boost sample of the

general population once every ten years, starting at Wave 13, and a boost sample of immigrants and ethnic minorities once every ten years, starting at Wave 18. A detailed case for support is currently being considered by ESRC Wave 13-15 Commissioning Panel. If funded, our boost strategy will enable us to meet both 'representativeness goals' long into the future; future proofing the strategy for the widest range of possible (unknown) research questions.

The general population boost sample is intended to increase the sample size of a broad and heterogeneous set of population subgroups. Indeed, it is intended to ensure that all conceivable analysis subgroups – including those which may become of interest in the forthcoming years due to societal or policy changes not yet envisaged – should be adequately represented in the Study. Furthermore, membership of analysis groups of interest in a longitudinal survey is often defined by life events or circumstances that cannot be predicted in advance, and certainly not at the time of sample selection. Therefore, the most efficient way to ensure that the boost sample is fit for purpose is to select an equal-probability sample of residents of the United Kingdom. This ensures that every conceivable population subgroup is represented in its correct proportion (within the limits of sampling variability, which will be small in a sample of the proposed size). The more specific Immigrant and ethnic minority boost sample (planned for Wave 18) will ensure that *Understanding Society* continues to have sufficient sample size to analyse key ethnic minority and immigrant groups as the UK population changes with different immigration patterns.

Action 1: If funded, implement general population boost at Wave 13 designing it to maximise its benefits to data users

Action 2: In due course, undertake analyses of ethnic minority groups in the sample against 2021 Census to plan w18 IEMB boost strategy (*w16-18 bid due early 2022*).

Initiatives to improve response

We have an ongoing programme of R&D to improve response rates, which is constantly evolving in the light of learning from what works for *Understanding Society* and new evidence from the survey methodology field more generally. Specific plans we are implementing over the next couple of years include:

- Increasing incentives for all participants in the Study. The current basic incentive is £10 and it has been this level since the Study began. We believe our plan to double the basic value of the incentive, from Wave 13, will help to maintain the overall response rate at their current high level.
- Developing a programme of differential incentives to encourage specific groups to engage with the Study, this might be at key survey stages – e.g. at reissue stage or for hard-to-reach groups. We have designed experiments to be carried out in 2020 on Wave 12 mainstage, to test the success of these proposals at improving response. At the end of the year, after evaluation, we will decide whether to roll out permanently.
- Changing fieldwork practice – for example by changing interviewer incentive structures, changing the type rather than value of incentive, using SMS to follow up with participants and encourage them to take part, increasing the number of contact attempts, and shifting to the use of telephone for the second mode rather than face-to-face.
- Redesigning all participant communications to be clearer and more informative, improving 'findings' dissemination and impact stories targeted at participants. Developing tailored materials designed to engage key participant groups e.g. adolescents, hard-to-reach groups.

- Supporting this programme of work with a participants' panel to advise on our approach, which need to be established in a way that ensures it does not change the behaviours of those involved in it, e.g. only invite participants from pilot sample, don't keep an ongoing panel but rotate it, etc.
- We are planning a new approach to data collection - event triggered – which will give researchers exciting new data on key life events (Jäckle *et al.*, 2019). This will involve regular contact with participants to identify when key life events occur. We hope that increased contact and sensitive follow up about life events in a more timely way may encourage participants to stay engaged with the Study when we otherwise might have lost them. This is a key research question in the development and testing of our approach to event triggered data collection over the next couple of years.
- One of the recent methods fellowships developed R-indicators for the Study, which as noted above, indicate the response bias rather than just (mean) response rates. Going forward as well as examining the impact of our initiatives on response rate we will also monitor their impact on response bias.

Action 3: Implement and evaluate initiatives to improve response/reduce response bias; roll out those that are cost effective. We will then building on internal and external learning to design a subsequent phase of initiatives to test.

Initiatives to re-engage 'lost participants'

Panel studies were designed on the assumption that data users required participants to be present in every wave for their analysis. Given this *Understanding Society* and BHPS before it adopted a rule that if a household missed two waves they were not followed up again. However, few analysts actually do rely on all waves of data – a recent review of 100 papers suggested only 22% followed this analytical approach – and many participants refuse a couple of waves at difficult times in their lives but are happy to re-engage later. We are adopting a three-prong strategy here to try to re-recruit people who have dropped out of the Study for some time.

- First, we are planning an audit of the BHPS sample who no longer take part in the study to identify those still alive who did not ask to totally withdraw from the Study. We will then try to trace them through standard tracing processes and/or family members still in the sample. We will undertake a one-off survey of those we find to ascertain their current situation, and ask if they would be willing to engage with the Study again. If so, we will incorporate them into the next fieldwork wave.
- Second, for *Understanding Society* participants who have not taken part for a few waves, we plan to offer a 'rejoiner' incentive and/or welcome pack of findings and participant stories to encourage them to re-engage with the Study. We will do this experimentally and compare approaches for the first wave they are re-approached and subsequent waves.
- Finally, we plan to revise our strategy to stop contacting sample members if they miss two waves, although we will issue such participants to web or telephone only to reduce the cost of follow up.

Since all of these initiatives will be costly, we will identify the extent to which they each add to the sample participants with rich data histories, and monitor how long participants re-engaged in this way continue as active sample members.

Action 4: Implement and evaluate the initiatives to re-engage lost participants, monitor short- and longer-term re-engagement in the Study.

Initiatives to maximise our samples of ‘missing populations’

As noted above the design of panel studies, means that while ‘missing populations’, such as prisoners, the homeless etc. are not necessarily in the original sample selection, they are highly likely to flow into and out of the Study. As outlined above, Borkowska (2019) identified some participants that have been part of these populations, but our processes for capturing new entrants’ histories and leavers destinations in these kinds of circumstances, for example moving in and out of institutions is quite patchy at present.

Action 5: to improve our new entrant and leaver data collection to capture more effectively moves in and out of institutions and life time histories of key statuses such as being in care as a child.

Secondly, in our Wave 12 bid, we included a follow up survey to understand better the circumstances, intentions and expectations of people leaving the Study and move into institutions, and we also hope to enable communications with them in their new institutional home, or relevant proxies for them, that enables us to continue to collect data. We are currently exploring fieldwork practices – for example interviewer incentives, tracing processes – to ensure we can effectively follow up people moving into institutions as well as how best to capture data on them.

Action 6: to design and undertake first wave of data collection on the institutional exit survey in 2020. To evaluate the success of the survey in terms of response rates, ongoing contact details and whether substantive information can be collected that is useful to researchers, adapt and develop the second wave of the survey in the light of these experiences.

Initiatives to expand data collection beyond the sample for populations of interest

There are a number of key population groups on whom *Understanding Society* has the potential to provide unique insights, but where currently our data is limited by small sample sizes and/or only collecting part of the family group in some way. For example, the Nuffield Foundation identified it as the best current source of data on separating families in the UK (Bryson *et al.*, 2017). There is a range of ways that the data on these families, who are important policy targets for a range of government departments and agencies, can be improved. For example, in the light of a number of recent experiments we are examining the wording of key questions and routing for couples that separate and on co-parenting (Bryson and McKay, 2018; Luthra and Haux, 2019). As noted above, we are also trying to identify ways of staying in touch with people around the time of life events, such as separation, more effectively. However, to make a step change in research possibilities in this important population group, in the Wave 13-15 bid, we proposed expanding the study to connect with the ‘other part’ of co-parenting families who are not currently part of the Study. This will expand the sample size of our separated couples population, but mean that some separated couples are not part of the ‘representative’ sample. However, we feel, if successful, such an initiative will provide value insights in the lives of parents and children in separated and/or co-parenting families. As a precursor for this, in the Wave 12 bid we proposed a survey of the ‘other half’ of living apart together couples (LATS). In IP13 we are designing questions to ask the sample member of the LAT couple to provide contact details for their partner so we can conduct a follow up survey in 2020/21. This will provide unique research data in itself for LATS as well as valuable lessons for rolling the approach out to separated and co-parenting parents. We will be asking sample members about their external co-parents in Wave 13 in order to incorporate them into the Study at Wave 14.

Action 7: to design our contact approach and data collection for LATS in 2020. To hold a workshop on our approach and the content of our first co-parenting survey late 2020, potentially experiment with

proposed questionnaire content in 2021 to field survey fully alongside Wave 14. Evaluate processes and build into the design of Wave 15. In due course consider rolling out to other 'significant others' such as the other half of caring dyads.

Another dynamic by which we lose sample members and often parts of Study families is emigration. In the Wave 12 bid therefore, we proposed establishing an emigration survey to understand better the circumstances, intentions and expectations of people moving abroad and hence out of scope of the Study. We hope this will also enable us to keep in touch with participants who have moved abroad to identify if they move back to the UK to re-engage them in the main Study. In the Wave 13 bid, we expanded these plans further to enable us to collect research data from emigrants so that the experiences of transnational interfamily relations could be explored.

Action 8: to design and undertake first wave of data collection on the emigrant surveys. To evaluate the success of the survey in terms of response rates, ongoing contact details and whether the substantive information that is useful to researchers, develop the second wave of the survey in the light of these experiences.

Finally, as noted above, current temporary sample members may provide ongoing insights into populations of interest after they leave the sample households. In some circumstances, for example, with separating couples, ex-TSMs may be part of the population we wish to approach for the co-parenting study. Given they will have a history of longitudinal data in the Study already; they should be our priority targets for such efforts to expand beyond the core sample. We will therefore, review TSMs leaving the Study and identify whether they have characteristics or experiences that may mean we wish to continue interviewing them despite they not being part of the Sample. We would not do this lightly but only if we believe the population group is sufficiently important and *Understanding Society* could provide a sufficient sample through this approach to enable effective research.

Action 9: Further review TSMs reasons for joining and leaving study with improved data, identify those that fall into priority groups when they leave the sample (e.g. co-parents) and seek to continue to engage them in data collection.

References

- Borkowska, M., (2019) *Improving population and sub-group coverage: who is missing and what can be done about it?* Understanding Society Methodological Briefing Colchester: ISER, University of Essex.
- Bryson, C. and S. McKay (2018) *Can we improve the survey representation of non-resident parents, and collect robust data on reasons for separation?* London: Nuffield Foundation.
- Bryson, C., S. Purdon and A. Skipp (2017) *Understanding the lives of separating and separated families in the UK: what evidence do we need?* Bryson Purdon Social Research LLP, London: Nuffield Foundation.
- Burton, J., (2017). 'Understanding Society: Response and Sample Sizes'. Presentation to the Understanding Society Scientific Advisory Committee Meeting, 9 October 2017. Colchester: ISER, University of Essex.
- Davis-Kean, P., Chambers, R.L., Davidson, L.I., Kleinert, C., Ren, Q. and S. Tang (2017) *Longitudinal Studies Strategic Review: 2017 Report to the Economic and Social Research Council* Swindon: ESRC.
- De Leeuw, E.D. and W. de Heer (2002). "Trends in household survey nonresponse: a longitudinal and international comparison". In R.M. Groves, D.A. Dillman, J.L. Eltinge & R.J.A. Little (Eds.), *Survey Nonresponse* (pp. 41-54). New York: Wiley.
- Fisher, P. (2019) *An assessment of the national representativeness of new mothers and women of childbearing age in Understanding Society* Understanding Society Methodological Briefing Colchester: ISER, University of Essex.
- Fisher, P., Fumagalli, L., Buck, N. and S. Avram (2019) *Understanding Society and its income data*, Understanding Society Working Paper 2019-08, Colchester: University of Essex.
- Fumagalli, L. (2019) *Understanding the role of Temporary Sample Members for Understanding Society* Understanding Society Methodological Briefing Colchester: ISER, University of Essex.
- Groves, R. M. (2006), "Nonresponse Rates and Nonresponse Bias in Household Surveys." *The Public Opinion Quarterly* 70: (5): 646-75.
- Goldstein, H., (2015), "When and why do we need population representative samples?" in Goldstein, H., Lynn, P., Muniz-Terrera, G. & Hardy, R., O'Muircheartaigh, C., Skinner, C. & Lehtonen, R., "Population sampling in longitudinal surveys (comment and debate)". *Longitudinal and Life Course Studies*, 6, 447 – 475. <http://dx.doi.org/10.14301/llcs.v6i4.345>,
- Goldstein, H., Lynn, P., Muniz-Terrera, G. & Hardy, R., O'Muircheartaigh, C., Skinner, C. & Lehtonen, R., "Population sampling in longitudinal surveys (comment and debate)". *Longitudinal and Life Course Studies*, 6, 447 – 475. <http://dx.doi.org/10.14301/llcs.v6i4.345>
- Jäckle, A., Burton, J., Couper, M.P., Benzeval, M. and T. F. Crossley (2019), *Event triggered data collection*, Understanding Society Methodological Briefing, Colchester: ISER, University of Essex.
- Knies, G. (ed.) (2018). *Understanding Society: Waves 1-8, 2009-2017 and Harmonised BHPS: Waves 1-18, 1991-2009, User Guide*, November 2018, Colchester: University of Essex.
- Kreuter, F. (2013). "Facing the Nonresponse Challenge." *The ANNALS of the American Academy of Political and Social Science*, 645(1):23–35.

Kruskal, W., and F. Mosteller (1979a). "Representative Sampling, I: Non-Scientific Literature". *International Statistical Review / Revue Internationale De Statistique*, 47(1):13-24.

Kruskal, W., and F. Mosteller (1979b). "Representative Sampling, II: Scientific Literature, Excluding Statistics". *International Statistical Review / Revue Internationale De Statistique*, 47(2):111-127.

Kruskal, W., and F. Mosteller. (1979c) "Representative Sampling, III: The Current Statistical Literature." *International Statistical Review / Revue Internationale De Statistique*, 47(3):245-65.

Kruskal, W., and F. Mosteller. (1980) "Representative Sampling, IV: The History of the Concept in Statistics, 1895-1939." *International Statistical Review / Revue Internationale De Statistique* 48(2):169-95.

Lehtonen, R., (2015) "Commentary By" in Goldstein, H., Lynn, P., Muniz-Terrera, G. & Hardy, R., O'Muircheartaigh, C., Skinner, C. & Lehtonen, R. (2015). Population sampling in longitudinal surveys debate. *Longitudinal and Life Course Studies*, 6, 447 – 475. <http://dx.doi.org/10.14301/lcs.v6i4.345>,

Luthra, R. and T. Haux, (2019). *What is shared care?* Understanding Society Methodological Briefing Colchester: ISER, University of Essex.

Lynn, P. (2011). *Maintaining cross-sectional representativeness in a longitudinal general population survey*. Understanding Society Working Paper 2011-04, Colchester: University of Essex.

Lynn P. and O. Kaminska (2010) *Weighting strategy for Understanding Society*, Understanding Society Working Paper 2010-05, Colchester: University of Essex

Lynn, P.(2015) "The Need for Representative Samples" in Goldstein, H., Lynn, P., Muniz-Terrera, G. & Hardy, R., O'Muircheartaigh, C., Skinner, C. & Lehtonen, R.. Population sampling in longitudinal surveys debate. *Longitudinal and Life Course Studies*, 6, 447 – 475. <http://dx.doi.org/10.14301/lcs.v6i4.345>,

Lynn, P. and M. Borkowska (2018), *Some Indicators of Sample Representativeness and Attrition Bias for BHPS and Understanding Society*, Understanding Society Working Paper 2018-01, Colchester: University of Essex.

Lynn P., J. Burton, O.Kaminska, G.Knies and A.Nandi (2012), *An Initial Look at Non-Response and Attrition in Understanding Society* Understanding Society Working Paper Series, No. 2012 – 02 Colchester: University of Essex.

Chávez Villegas C. and E. Samman (2015), *Exclusion in household surveys: Causes, impacts and ways forward* London: Overseas Development Institute <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinionfiles/9643.pdf>

ONS (2009) "Predicting Patterns of Household Non-Response" Paper presented to the Census Advisory Group 24.02.2010.
<https://www.ons.gov.uk/file?uri=/census/2011census/consultationsusersandlocalpartners/censusadvisorygroups/censusgeneralcag/ag0917tcm77190524.pdf>

Postel-Vinay, F. and A. Sepahsalariz (2019), *Labour Mobility and Earnings in the UK, 1992-2016*, Understanding Society Working Paper 2019-09, Colchester: University of Essex

Schoeni RF, Stafford F, McGonagle KA, and P. Andreski (2013) 'Response Rates in National Panel Surveys' *The Annals of the American Academy of Political and Social Science*;645(1):60-87. doi:10.1177/0002716212456363.

Schonlau, M., N. Watson, and M. Kroh (2010), *Household survey panels: how much do following rules affect sample size?* SOEP papers on Multidisciplinary Panel Data Research 347, DIW Berlin: The German Socio-Economic Panel (SOEP).

University of Essex. Institute for Social and Economic Research, NatCen Social Research, Kantar Public. (2018). *Understanding Society: Waves 1-8, 2009-2017 and Harmonised BHPS: Waves 1-18, 1991-2009*. [data collection]. 11th Edition. UK Data Service. SN: 6614, <http://doi.org/10.5255/UKDA-SN-6614-12>

Understanding Society

Institute for Social and Economic Research (ISER)
University of Essex
Wivenhoe Park
Colchester
CO4 3SQ
Tel: +44 (0) 1206 872957

www.understandingsociety.ac.uk

 @usociety

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