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Understanding Society at 10 Years

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Abstract

Understanding Society: The UK Household Longitudinal Study (UKHLS) has now been collecting a range of data from its nationally representative sample of participants for 10 years. This significant 'birthday' offers a moment to reflect on its contribution to sociological research, and on its current and future potential for fundamental and cutting-edge sociological analysis. While the study shares many features with other longer-standing household panel studies, including its direct predecessor the British Household Panel Survey (BHPS), it incorporated from the outset distinctive features that make it particularly valuable for analysis in specific fields, including biosocial research, ethnicity and migration studies, and analyses of the interplay between environmental, social and institutional contexts and individual characteristics. *Understanding Society* has incorporated methodological development and innovation since its inception, which has facilitated more extensive forms of data collection.

Introduction

The completion of the first round of interviews in 2009/2010 of the multi-disciplinary, multi-topic data resource, *Understanding Society*: The UK Household Longitudinal Study (UKHLS), ushered in the largest nationally representative household panel study to date and set the scene for enhancing key areas of sociological research. Having now collected 10 years' worth of data, it is an appropriate point to reflect on the study's current contribution to sociological research and its future potential. *Understanding Society* incorporates the key benefits of existing panel studies, such as full household coverage of a nationally representative sample across all ages, tracking all original sample members and their descendants annually, even as they move, or move apart, collecting detailed information on key domains of life

including income, employment, health, attitudes and behaviours, and gathering retrospective partnership, fertility and employment histories to set adult life courses in context (Benzeval, 2020). At the same time, the study set out to extend the research potential of panel studies in a number of directions.

Understanding Society's innovative features included an explicit intention to develop as a biosocial survey, with the collection of biomarkers and samples directly from participants, alongside measures of cognitive functioning. Second, the study implemented a split between a smaller amount of annually collected core content and other topics collected at varying frequencies. This modular design increased the topics covered, capturing a richer set of measures across the study. As *Understanding Society* reaches 10 years, even low-

frequency measures have been collected at least twice. Third, facilitating research on race, ethnicity and migration was built into the study from the outset via boost samples and dedicated additional content at every interview. Fourth, the study pushed back the age range for inclusion of data directly from children in households by surveying them annually from age 10, while parents provide information at key developmental stages of younger children. Fifth, despite some clustering in the study design, the size of the study and its comprehensive geographical spread across the country facilitates analysis at different geographical scales, enhancing the potential from linkage to a wide range of geocoded data. Sixth, *Understanding Society* explicitly encompassed methodological innovation as central to its implementation. It was the first household panel study to field a dedicated longitudinal sample to inform issues of design, content, and implementation of the main study, the 'Innovation Panel' (IP). Further innovation is offered by the opportunity for researchers to apply to test substantive questions in an experimental context in the IP, or to approach sample members for substantive qualitative research via associated studies.

All these features both core and innovative have facilitated a wealth of research across disciplines from economics to psychology, from epidemiology to social policy. They have also fostered the development of specifically sociological lines of inquiry, which are the focus of this paper. After outlining the rationale for and design of the study, we focus on three specific areas: the rich potential for research on (i) race, ethnicity and migration, (ii) individuals in socio-spatial contexts, and (iii) biosocial processes. The article concludes by reflecting on future developments and research opportunities.

Design and Key Features of Understanding Society

Potential, Aims and Implementation

Understanding Society was commissioned in 2007 with an ambitious agenda to both capitalize on the success of the British Household Panel Survey (BHPS), which had been running since 1991, and to reflect changing and emerging research agendas, particularly around biosocial research. It was intended to fulfil a longstanding intention to conduct a longitudinal study of ethnic minorities (Nazroo *et al.*, 2005); and to have a large enough sample to enable the statistical power required for comparisons across ages, regions, and other subgroups of interest. Longitudinal panel studies cover all ages concurrently, unlike cohort studies which focus on

particular age groups, whether of infants, such as the Millennium Cohort Study (Connelly and Platt, 2014) or older people, such as the English Longitudinal Study of Aging (Steptoe *et al.*, 2013). *Understanding Society* includes around 10,000 people from each birth cohort decade since the 1940s (Benzeval, 2020), with around 1,000 children born into the study each year. This offers the potential to compare across birth cohorts as cohort composition changes. It also aids disentangling age, period and cohort effects; and makes it possible to focus on particular periods such as older old age or mid-life, or youth. Size also matters for the longitudinal analysis of other specific sub-populations, whether entry into lone parenthood (e.g. Brewer *et al.*, 2016); disability (Curnock, Leyland and Popham, 2016); or unemployment (e.g. Plum and Knies, 2019).

The four-country nature of the UK also means that a large sample size can enable analysis of the smaller countries of the UK (e.g. Mohan *et al.*'s, 2017 study of neighbourhood renewal in Northern Ireland), or comparisons across them. This has benefits for longitudinal analysis of policy, given that some laws and policies (e.g. education policies) differ between constituent countries of the UK. Even though for fieldwork efficiency the original design was clustered, stratification ensures coverage of all regions and of different types of area within the study, for example, affluent and deprived, metropolitan, urban and rural, high and low density, with different demographic profiles and concentrations. Geocoded data can be matched to respondent addresses at different geographical levels to facilitate different sorts of socio-spatial and contextual analysis (Knies, 2017), as discussed further below.

Understanding Society's substantial statistical power, in combination with a 2-year fieldwork period with 24 monthly samples who are interviewed at the same time each year also facilitates the analysis of the impact of particular events. It is possible to identify which responses fall either side of unexpected (e.g. floods, terrorist attacks or, most recently, the COVID-19 outbreak) or scheduled events (e.g. elections, referenda, or the 2012 Olympic games). For example, the referendum on leaving the EU provided the opportunity for analysis not just of voting and attitudes to Europe (e.g. Fox *et al.*, 2019), but also of its impact on wellbeing (Powdthavee *et al.*, 2017). Given increasing sociological interest in quasi-experimental as well as experimental methods (see, e.g. the 2020 special issue of *Research in Social Stratification and Mobility*), this feature of the design offers substantial potential for researchers. The design also facilitates the exploration of seasonal effects.

The small population size of individual ethnic minority or immigrant groups in the UK, means that, even in a large nationally representative study, they cannot be covered in sufficient numbers for analysis. This then necessitates additional boost sampling to meet the needs of researchers concerned with the longitudinal analysis of the experience of ethnic minorities. The initial design therefore encompassed a large new nationally representative probability sample, with an oversample of ethnic minorities (Berthoud *et al.*, 2009; Buck and McFall, 2012). A further immigrant and ethnic minority boost survey was implemented at Wave 6 (Lynn *et al.*, 2018). We discuss the potential of *Understanding Society* for analysis of race, ethnicity and migration below.

The long-running BHPS, also a UK probability sample, was incorporated from Wave 2 of *Understanding Society*, after BHPS members completed their final, 18th, wave of data collection. The inclusion of the BHPS sample has enabled researchers to continue to draw on data running back two decades. Research that has capitalized on this long-run potential includes, for example, analysis of youth's housing transitions from the parental home (Bayrakdar *et al.*, 2019). The total size of the study with main sample, boost sample, and BHPS made it the largest panel study of its kind, covering around 40,000 households containing around 100,000 individuals (Buck and McFall, 2012).

Improving Data Quality

The benefits of longitudinal studies in allowing the tracing of social processes over time and facilitating methods such as fixed effects analysis that use repeated measures to identify causal effects are well-known to sociological researchers (Halaby, 2004). These possibilities rely on the successful maintenance and high response rates of sample members over time (Lynn, 2009). Sociologists are increasingly aware of and attentive to issues of causal and population inference (Gangl, 2010), which naturally dovetails with an interest in survey methodology. A year before the main sample went into the field, therefore, an IP of 1500 households was sampled. This was set up to test questions, approaches to participants, incentives, and the effectiveness and impacts of mixed mode design (e.g. face-to-face, online and phone). The IP renders *Understanding Society* an invaluable resource for assessing, for instance, the implications of web-based data collection for respondent engagement, and mode effects (Lynn, 2013; Bianchi, Biffignandi and Lynn, 2017). These are issues relevant to users of *Understanding Society*; but also for sociologists planning their own cross-sectional or longitudinal surveys. Given the multi-topic nature of study, the IP provides insight into robust measurement on a wide range of issues (Tourangeau, Rips and Rasinski, 2000; Schaeffer and Presser, 2003). It sheds light on the challenges of questionnaire design in longitudinal context, for instance 'panel conditioning' where respondents are influenced by answers they gave previously (Uhrig, 2012). The IP has subsequently been boosted with fresh samples of households to maintain analytical power; and has been open to the scientific community to propose experimental research, with data then becoming available to all data users.

Respondents, Relationships, and Survey Content

As with other panel studies, the *Understanding Society* sample covers all members of households. As all original household members and children born to female members are permanent members of the study, the sample remains nationally representative of the 2009/2010 population as they age and reproduce. Ethnic minority and immigration boost samples allow the study to continue to be nationally representative as immigration alters the population profile. When permanent sample members form new households or households split, information is collected about all members of these new households, but only permanent members, and, if women, their children continue to be traced over time.

Each participating household completes a short household level questionnaire, covering household membership and aspects that are general across the household such as housing conditions, environmental behaviour, material deprivation and wealth. A longer individual interview/questionnaire is then completed by each adult (defined as 16+) in the household. Content is either repeated annually where it is important to track change relatively frequently, for example in relation to jobs, income, health status, or less frequently, where less change is expected. This facilitates a broader range of content to be covered overall and for shorter form suites of annual questions to be supplemented by detailed modules more occasionally. Repeat measures of all modules enable the application of panel data methods, even if the different frequencies mean that some topic combinations occur less often than others. These contemporaneous questions are supplemented by retrospective questions on family origins as well as employment, partnership and fertility histories and inter-wave employment histories. The long-term content plan showing the cycles of different modules is provided on the study website.

Understanding Society collects data from children as young as 10, before their transition to secondary school, on topics of interest in this age group. These include their future plans and aspirations, wellbeing, friendships, and political affiliations (e.g. Hartas, 2016), giving insight into key developmental and socialization processes. For example, Platt and Polavieja (2016) explored the implications of parents' gender role attitudes for their children; while Bu (2016) demonstrates the role of birth order and spacing on educational aspirations and subsequent educational attainment. Yucel and Yuan (2015) investigated the role of siblings in child development and aspirations. On reaching 16, all participants become eligible for the adult questionnaire enabling analyses across key transitions and throughout the life course. Such research is further enabled by age triggered questions. While 16- to 24-year-olds are asked additional questions that are particularly salient for youth, 45- to 55-year-olds are asked about retirement plans.

The child, youth and adult questionnaire thus offer potential for tracking key life course transitions and intra-familial and intergenerational processes and dynamics as the study follows participants from year to year and wherever in the UK they move to (and whoever they move in with). Zhou and Kan (2019) and Okun and Raz-Yurovich (2019) have, for example, explored family dynamics in fathers' and mothers' contributions to unpaid work in relation to their possible influence on family fertility. Ongoing interest in intergenerational social mobility and its consequences is also fostered by the possibilities for analysis of parent-child transmission (e.g. Bukodi *et al.*, 2015; Zwysen, 2015; Zuccotti and O'Reilly, 2019). The array of survey content makes it possible to consider the implications of mobility for life satisfaction (e.g. Chan, 2018) or cultural consumption (e.g. Chan and Turner, 2017).

The possibilities do not stop with parent–child relationships. Mare (2011) highlighted the need to pay attention to the family beyond parents and children better to understand intergenerational transmission, with a consequent increase in studies of grandparent-to-grandchild transmission. With both retrospective and prospective intergenerational information, analysis of *Understanding Society* has been able to contribute insights on the role of grandparents (e.g. Zhang and Li, 2019). Others have studied adult children living near to their parents, with the implications for caring up the generations (e.g. Chan and Ermisch, 2015); or used the retrospective information on social origins and on work and employment histories in combination with the prospective longitudinal data to consider life course

influences on the health of older people (e.g. Tosi and Grundy, 2019). With the contemporary 'crisis of care' in part associated with demographic ageing such issues are highly salient for policy.

The data on family relationships and dynamics has also fostered greater understanding of phenomena associated in particular with the post-recession period, such as 'boomerang children' who return to the family home, and the consequences for their parents (Tosi, 2020); as well as the still relatively understudied experience of those in non-cohabiting romantic relationships (Coulter and Hu, 2017). Encompassing relationships beyond the household also forms part of the agenda for the future development of the study (Benzeval, 2019).

Finally, the original study design laid the groundwork for the collection of a comprehensive suite of biomarkers (McFall *et al.*, 2012), complemented by interviewer administered collection of measures of cognitive function across the full age range of adult participants (McFall, 2013). While such biomarkers have been collected from cross-sectional health studies, and from longitudinal studies of older adults, the collection from all household members in a panel study of such a range of health and genetic data is unique. Given the interest among sociologists in unpicking the role of 'nurture versus nature' in core domains of social stratification and intergenerational transmission (Conley and Fletcher, 2017), as well as identifying the role of environment and context and its interaction with genetic predispositions (e.g. Holm, Hjorth-Trolle and Meier Jæger, 2019), these biomarkers offer rich terrain for interdisciplinary analysis of such issues.

Studying Ethnicity and Migration in *Understanding Society*

Understanding Society offers a particularly rich resource for sociological research on race, ethnicity and migration. While it brings all the benefits of a multi-topic household panel design to the analysis of questions of ethnic difference, there are three features of the study that particularly foster research in the field. The first is sample size and representativeness. The UK is characterized by a diversity of minority ethnic groups with distinct migration and settlement histories, educational attainment and socio-economic position, occupational clustering and, patterns of family formation and fertility (see e.g. the overview in Platt and Nandi, 2020). This renders it necessary to ensure sufficient sample sizes of specific groups. With a target of at least 1,000 adult respondents from the five main ethnic minority groups, to maintain cost efficiency, the Wave 1 ethnic minority

boost was selected from areas of high ethnic minority concentration. Such areas covered 80% of the target population (Berthoud *et al.*, 2009). But as the main sample includes ethnic minorities from all areas, by analysing the study as a whole—both main sample and the ethnic minority boost sample—and through the application of the appropriate weights, the study is nationally representative of all ethnic minority and immigrant groups throughout the UK (Understanding Society, 2019). This is something that specialist ethnicity surveys rarely achieve.

Ethnic minorities tend to have higher rates of attrition from longitudinal studies, even if this is driven more by contextual factors driving non-contact than by differences in non-response (Schneider, 2016). Over time, the ensuing reduction in sample sizes limits analysis. Additionally, as immigration patterns change over time, a sample selected in 2009 will not remain representative. A further immigrant and ethnic minority boost sample was therefore added to Understanding Society at Wave 6 (Lynn *et al.*, 2018). This second boost was again sampled through identifying areas likely to have higher concentrations of ethnic minorities, immigrants and recent immigrants (Lynn *et al.*, 2018). Scheduled repeat boosts of the immigrant and ethnic minority population are part of the long-term planning for the study.

The second key feature is the range of ways in which ethnic and immigrant origin groups can be classified within the study. Following a large-scale consultation with academics from different disciplines as well as policy-makers and research users, prior to the implementation of the study, it became clear that no single measure of ethnicity or immigrant origin that would meet needs of all data users. Hence, the strategy was to incorporate multiple measures. These include the 'official' Office for National Statistics (ONS) categories, but also origin country going back multiple generations, repeated measures of ethnic identity, and identification with parents' ethnicity (see further McFall *et al.*, 2019). The standard ONS ethnic group question is also asked for child respondents (10–15 years olds), and again when they become adult respondents. Other measures associated with ethnicity or migration background, such as national identity, Britishness, language spoken at home during childhood, and both religious affiliation and religiosity are fielded periodically. This array of measures enables researchers to construct measures that suit their purposes, as well as facilitating comparison with data from other sources (Burton, Nandi and Platt, 2010). The multiple measures can be the subject of research in their own right, enhancing our understanding of identity formation and expression, contextual influences, and consequences. It is, for example, possible to analyse how far parental and grandparental country of origin overlaps with ethnic identity; and how far those of different ethnic groups identify with parental ethnic identity or assert a strong ethnic identity of their own (Nandi and Platt 2015, 2020). This flexible approach to measurement can enhance understanding of ethnic and inter-group processes as well as refine analysis of differential outcomes across groups.

The third key feature is the range of content, both general and specific. The multi-topic and modular nature of Understanding Society offers the potential to study multiple dimensions of the experience of ethnic minorities, ranging from intra-household division of labour (Kan and Laurie, 2018) to unemployment dynamics (Longhi, 2020), to intergenerational mobility (Zuccotti, 2015), to health behaviours (Luthra, Nandi and Benzeval, 2020), to pension provision (Vlachantoni *et al.*, 2017), to citizenship acquisition (Donnaloja, 2020), to life satisfaction (e.g. Shen and Kogan, 2020), to youths' family intentions (Berrington, 2020). In some cases, particular suites of questions, such as the verbal tests of cognitive function, were selected because they could work effectively in translation, which is an option for respondents to the survey (McFall *et al.*, 2019). In addition, 5 minutes of questionnaire time were set aside for *additional* questions that were of specific relevance to ethnic minorities' experience. These include questions on remittances, financial literacy, English language fluency, experience of harassment and discrimination, ethnicity of employer, additional questions on friendships, religiosity and service use, and more detailed questions on identity and belonging (McFall *et al.*, 2019). These questions are asked of respondents in the boost sample, plus those ethnic minorities and immigrants who live in areas that were not sampled for the boosts, to ensure these 'low-density areas' are covered. They are also asked of a subsample of the main sample to provide a 'general population comparison sample'. This makes it possible to analyse representative responses to these questions (subject to weighting), and to compare across groups.

Overall then, Understanding Society combines the advantages of a large-scale, representative multi-topic longitudinal study with a specialist study of ethnicity and migration. These features have led to a substantial number of papers in the first 10 years of Understanding Society. We briefly consider a small number of studies, which illustrate the ways the study has been used to engage with contemporary sociological issues in the field.

Structural integration and minorities' and immigrants' labour market outcomes remain central to

sociological analysis of ethnicity and inequality. Using retrospective questions on family social origins, research has addressed contemporary patterns of social mobility among children of immigrants (e.g. Zuccotti, 2015), while the longitudinal nature of the data has been used to study flows into and out of employment (Longhi, 2020), and dynamics of labour force participation among women of different ethnic groups (Khoudja and Platt, 2018). Arcarons (2020) additionally exploited the study's household structure, utilizing information on respondents' own and their partners' parents, providing an original insight into the 'mother-in-law effect' and how it can help account for ethnic differences in women's labour force participation. Located in the ongoing debates on niche economies and preferences for self-employment (e.g. Xie and Gough, 2011; Abada, Hou and Lu, 2014), Brynin, Karim and Zwysen (2019) investigated moves into and out of self-employment. They capitalized not only on the longitudinal data to explore 'choices'; but also made use of the richness of economic and job-related measures, such as job satisfaction, to capture both intangible and tangible rewards of employment relative to being self-employed.

Alongside structural integration, health and well-being are key areas of investigation in the field. A rapid increase in research on immigrant life satisfaction has been fostered by studies such as *Understanding Society* fielding standard well-validated measures. Shen and Kogan (2020) made use of repeat measures and multiple immigrant generations in *Understanding Society* to consider the salient issue of reference groups, when examining the relationship between life satisfaction and relative income. Luthra *et al.* (2020) analysed health behaviours collected in the study to shed light on immigrant health selection and behavioural forms of adaptation. They also exploited the specially-designed measures on harassment to provide evidence on the association between harassment and health via health behaviours. Looking to issues of ethnic group composition and change, Wilson (2019) studied the extent of assimilation in fertility across those of different immigrant origins, using the respondents' fertility histories, and highlighted distinctive patterns across groups. As a final example, Mok (2019) made use of the different identity measures within the study to provide a much greater understanding of the UK's mixed ethnicity populations. The multiple measures in *Understanding Society* make it possible to reveal that only a minority of those of mixed parentage select one of the mixed categories available in the standard ethnic group question. As a result, our understanding of these populations has been partial. Mok (2018) supplemented her quantitative analysis with an

Associated Study, enabling her to explore qualitatively the identity choices of those of multiple origins.

These few examples do not exhaust the possibilities for analysis of ethnicity and migration using *Understanding Society*, but highlight some of the ways in which the distinctive features enable the development of research agendas in the field.

Studying Socio-Spatial Contexts with *Understanding Society*

Originating in the works of Tönnies (1887), Durkheim (1893), and Simmel (1890), the study of individuals and social groups in socio-spatial contexts has a long and rich tradition in sociology. Classic community studies regarded neighbourhoods as places where patterns of the social structure develop and manifest (e.g. Park and Burgess, 1925; Lynd and Lynd, 1929), and individual places were studied to provide insights into the (mal)functioning of society as a whole (cf. Horkheimer and Adorno, 1974), often with a view towards improving society. The wide geographical spread and large, geographically clustered sample of *Understanding Society* facilitates longitudinal analyses of the living conditions in Britain's metropolitan areas. These areas also have substantial populations of immigrants and ethnic minorities.

While the spatial resolution is not sufficient to analyse subsamples of respondents living in specific neighbourhoods, the data may be used to generate community-level indicators at various scales (subject to weighting and respecting minimum cell-size rules). Buckner (1988)'s neighbourhood social cohesion instrument, collected every 3 years, has, for example, helped identify 'left behind communities' (Oxford Consultants for Social Inclusion, 2019). The instrument also lends itself to testing some of the classical sociological hypotheses, such as that specialization, urbanization and increases in various forms of mobility lead to the erosion of social ties and anomie, to the 'loss of community' (Wellman and Leighton, 1979), and to 'bowling alone' (Putnam, 1995). Ferragina, Tomlinson and Walker (2017) used it to investigate Townsend (1979)'s contention that the poverty line may be measured scientifically as the point in the income distribution at which participation in society drops starkly.

Additions to the neighbourhood module, which measure neighbourhood social cohesion consistent with the instrument developed by Robert Sampson and others for the Project on Human Development Chicago Neighbourhoods, offer exciting avenues for cross-national comparisons that are yet to be explored. Information about care provided for and by neighbours, collected in

each round of interviews could be used to understand the role of community such as how Britain might organize social care for its ageing society. It remains to be seen how this debate develops, not least against the background of the support provided by local communities during the COVID-19 pandemic.

Following Wilson's (1987) urban underclass claims, research that examines the role of place in shaping people's economic and social outcomes, has commanded particular interest in the sociological literature. The impact of neighbourhood socio-economic deprivation, toxic exposure, crime, ethnic group, and immigrant composition on economic outcomes, behaviours, and beliefs has been widely studied (e.g. Brooks-Gunn, Duncan and Aber, 1997; Dietz, 2002; Sampson, Morenoff and Gannon-Rowley, 2002). Going forward, the issue is to consider more closely for whom, over what duration, and at what scale the neighbourhood effect operates, as well as better specifying the exact social interactive, environmental, geographical or institutional mechanisms involved (Galster, 2008; Sharkey and Faber, 2014). This agenda has been taken up in sociology with a range of research providing insights into the role of different scales on substantive questions (e.g. Dinesen and Sønderskov, 2015; Janssen *et al.*, 2019), including with an increasing sensitivity to the mechanisms driving effects (e.g. Knies, 2012).

Understanding Society facilitates neighbourhood effects research with its wealth of potential 'outcomes' combined with as its range of geographical coverage and opportunities for linkage with spatially resolved data (e.g. Knies, 2017). Platforms such as UK Open Data provide free access to tens of thousands datasets created by the central government, local authorities and public sector bodies (Hodgson *et al.*, 2020). In contrast to other national and international longitudinal studies, the hurdles to access address-derived data in *Understanding Society* are relatively low with all but the most sensitive data available, subject to approval, for download. Additionally, grid references and postcodes may be accessed, subject to approval, remotely or through a number of secure data hubs. The spatial granularity of available indicators, too, is unprecedented, ranging from an average of 15 properties (postcode areas) to 90–250 households (census output areas). The characteristics of lower super output areas (average size of 600 households), in particular, are 'substantially smaller and more internally homogenous than the geographies that have been relied upon by many previous studies, enhancing our ability to uncover evidence of neighbourhood processes operating within local communities' (Sutherland *et al.*, 2013; pp. 1055–1056). We have seen this scale used in studies of the relationship between neighbourhood ethnic composition and occupational clustering (e.g. Zwysen and Demireva, 2020); neighbourhood effects and mental health among youths of different ethnic groups (e.g. Jonsson, Vartanova and Södergren, 2018); changes in ethnic composition on populist voting (e.g. Kaufmann, 2017); ethnic density on minorities' physical health outcomes (e.g. Feng *et al.*, 2017); neighbourhood unemployment on the income and employment prospects of unemployed and low-income workers (Plum and Knies, 2019); and air quality on life satisfaction (Knight and Howley, 2017). Other studies have used more granular data linkage to study, for example, the impact of deprivation on life satisfaction and earnings (e.g. Knies, Melo and Zhang, 2020). There remains enormous potential to disentangle further the relationships between different spatial manifestations of social inequalities and individuals' beliefs, behaviours and outcomes at different stages in the life course, exploring the underlying mechanisms and employing relevant spatial scales.

Understanding Society as a Biosocial Resource

In recent years, sociological research has increasingly incorporated biological processes into understanding of social processes (Harris and Schorpp, 2018). The interaction between social context and biology has both been fostered by and created a demand for more explicitly interdisciplinary approaches, and for data able to complement sophisticated measures of social context and behaviours with direct measures of physiological—and cognitive—functioning. At the same time, biomedical researchers have begun to recognize that their measures of social position and social dynamics were typically limited. In this context, the aims for *Understanding Society* as a biosocial study were formed.

At Wave 2, a comprehensive suite of biomarkers was collected, implemented through nurse visits, echoing the protocols of health surveys, and comprising measures of function (e.g. grip strength), lung function, as well as blood pressure, and waist circumference, height, weight and body fat percentage. For those who consented (two-thirds of those visited), blood was collected for subsequent analysis of analytes; and 20 such analytes have been produced, providing markers of common chronic conditions and ageing processes. DNA was also extracted to provide genetic information for 10,500 adults in the study (see further Benzeval *et al.*, 2014; Benzeval, Kumari and Jones, 2016).

The resource provided by such biomarker data enables a more comprehensive understanding of how

environment 'gets under the skin' (e.g. Prior, Manley and Jones, 2018). This offers insight into the specific mechanisms linking, for example, neighbourhood and health. Biomarkers also shed light on the interaction between individual predispositions and social context, bringing together the individual and the structural. The ability to consider issues such as resilience and stress, with direct measures such as those of allostatic load, has contributed to revealing the way social processes are expressed at the individual level. For example, Präg and Richards (2019) examined the connection between social mobility and allostatic load, while Chandola et al. (2019) examined the possibilities for flexible working to reduce stress. Karimi et al. (2019) made use of 16 blood-based biomarkers to consider how socio-economic position drives physical processes in early adulthood leading to subsequent health inequalities. Biomarkers can also be compared to subjective measures of health to enhance understanding of the meaning and interpretation of much debated self-reported health measures (Chaparro et al., 2019).

While social scientists have long been wary of the use of genetics due to the association with deterministic interpretations of individual outcomes and eugenicist approaches to social policy, sociological research is now making strides in employing social genomics to provide a more sophisticated and robust insight into social inequalities and to challenge racialized assumptions (Conley and Fletcher, 2017). Bringing together detailed longitudinal and household level social survey data with biomarker measures, *Understanding Society* therefore offers great potential to sociologists concerned with substantive issues of health, wellbeing, and inequality.

Engaging with such data can often mean new ways of working, with larger multidisciplinary collaborations required to bring together the knowledge and expertise of health scientists and social scientists. Despite regular calls from funders for such interdisciplinary ways of working, the practical realities of disciplinary divides can make such collaborations professionally risky as well as labour intensive. Nevertheless, there is movement on this front, with sociology journals becoming open to publication of such work (e.g. Chandola et al., 2019). The richness and accessibility of biosocial data such as these can only encourage further collaborations and foster the growing study of biosocial processes within sociology.

Conclusions: Looking Ahead Understanding Society at 20

At its 10-year anniversary, *Understanding Society* can be considered to have reached maturity as a longitudinal study. The rotation of modules offers repeat observations across all areas covered; the study has been kept live with boost samples, and increasing numbers of substantive research papers are emerging, as well as methodological and experimental papers. The next 10 years could in some ways be considered a time for consolidation—more young people will grow into adult respondents, more participants will have life transitions, change jobs, locations, partners, while those in stable circumstances will still offer over 10 years of data for analysis. All this will mean increased possibilities for examining life course issues and the shorter and longer-term dynamics of the population's lives.

At the same time, the next 10 years can be seen as an opportunity, building on the established nature of the panel to expand the possibilities of what a household survey is and can do. A number of areas for innovation have been identified, which, as they come on stream will provide opportunities to answer new questions as well as provide more comprehensive answers to longstanding issues in the field. We take this opportunity to identify just some of these, and consider their relevance for current and future research.

As with all longitudinal studies, the impact of attrition on sample sizes and the issue of maintaining representativeness over the life of the study are key concerns. Alongside extensive work on the best routes to sample maintenance, future plans include infrequent but scheduled refreshment samples to the study alongside periodic repeat immigrant and ethnic minority boost samples, which will also keep the survey representative of more recent immigrant flows. Alongside refreshment of the sample itself, repeat biomarker collection is planned to enable longitudinal analysis of these direct measures of functioning as well as of epigenetic processes.

Understanding Society remains sensitive to the changing context in which respondent's lives play out. For example, as the COVID-19 crisis struck the UK, schools shut down and lockdown commenced, an application for additional funding was made (and supported) to run a monthly online survey to track individuals' and families' experiences and responses, starting in April 2020. This additional survey provides short-time insights into the impact of these unprecedented times (see e.g. Etheridge and Spantig, 2020 on mental health impacts), as well as providing information that will be invaluable in tracking the long-term consequences. Alongside repeated content, users have also proposed questions for the second and subsequent surveys in a content 'competition'.

The ability to field an online study on COVID-19 at short notice came both from the wider move to online

'interviewing' as well as development work that had already taken place around event-triggered surveying. That is, plans for future innovation encompassed the utility that could be gained from responding to specific events—such as a birth, or a move, or a life transition, such as retirement. Fielding such event-triggered modules will enhance understanding of responses to key moments in people's lives at the time they are most salient, with the added benefits of reducing measurement error due to recall bias and keeping sample members engaged and participating over periods of disruption and change.

Open competition for content inclusion echoes a regular exercise previously used in the BHPS. It also reflects experience in responding to user-led innovation and working with researchers on material, which comes through the annual IP call for proposals. Response to researchers and changing contexts is also implemented through specific consultations. For example, a consultative workshop was held with researchers to develop a revised suite of employment questions to better capture the 'gig economy'. The adaptability of how data are made available in particular time-critical circumstances follows on the provision of early access to 'Brexit' data. This facilitated a limited number of researchers implementing concrete Brexit-related research plans prior to the release of the full wave of the data (e.g. Fox *et al.*, 2019). Such opportunities are advertised both on the website and directly to data users and those who sign up for communications.

Future plans also involve looking beyond the bounds of the household, which has been the standard if not uncontested unit for such panel surveys. Non-resident parents are often poorly captured in surveys, and those who are present tend to be a non-random selection (Bryson and McKay, 2018); while reported fertility histories are not always a reliable measure of men's past fathering. Finding ways to better capture and retain non-resident parents is an ambition for the study, as is acknowledging—and collecting data from—'significant others' outside the household, even if they do not formally constitute permanent study members.

Other developments aim to increase options for users and flexibility in how they make use of the study as well as promoting 'best practice'. For example, users are encouraged to share code used in published studies in code 'libraries', enabling replication as well as maximizing sharing of common coding decisions. While a large suite of weights is provided to allow different types of cross-sectional and longitudinal analyses, it does not cover all combinations of waves and measures that researchers may want to use. Guidance on creating weights will allow researchers to construct weights specific to their analysis. Ongoing extensions to the extensive and accessible documentation are also envisaged.

Such developments and innovations will support new directions in sociological research. The study will be able to cater to increasing interest in the use of genetic data. The array of direct health measures will address concerns on measurement error or cultural specificities in reporting. As sociological research embraces increasing sophistication in geo-spatial modelling, the study will offer the potential to apply such models and employ a range of contextual and network data. Future measures of national and local elections, as well as responsive engagement with less predictable events, such as the current pandemic, in combination with the longitudinal design will provide opportunities for causal estimation through exploiting exogenous shocks. Alongside, all of this, commitment to the cross-national equivalence files and collaboration with other comparable studies in other countries (cf. Giesselmann *et al.*, 2019) continues to offer the under-used potential for informative cross-national comparisons.

In conclusion, by taking stock of the realized and potential contribution of *Understanding Society* for sociological research on its 10th anniversary, we hope to provide greater awareness among sociologists across Europe and around the world of the burgeoning possibilities the study offers for sociological analysis, and for the study of race, ethnicity and migration, socio-spatial research, and biosocial processes in particular. The potential methodological and substantive insights to be gained from the survey are still only beginning to emerge. We invite researchers to engage further with the study, not only through the readily accessible data, but also through engaging with opportunities to shape content, experimental and associated study proposals, supported by online and face-to-face training, and sharing research findings at the biennial *Understanding Society* Scientific Conference.

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