

Where have all the good stats gone? – standard output from the 2001 and 2011 Censuses and intersectional local labour market research

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Summary

The census standard output is the most accessible data from the census particularly for non-data specialists. It is unique in that it is the only data source that provides researchers with the opportunity to explore information about residents, and in particular their labour market engagement at the (very) local (sub-district) level. The number of standard output tables released after the 2011 Census was greater than after the 2001 Census. However there was a decrease in the number of tables combining labour market information and multiple demographic characteristics related to the Equality Act 2010. This paper analyses the 2001 and 2011 Censuses standard output tables in the context of equality legislation. It shows that the ability to undertake intersectional labour market analysis at the local level and to ‘police’ the Equality Act 2010 locally has decreased substantially.

Key words: census, intersectional, local, labour market

Intersectional labour market research and the Equality Acts

The Equality Act 2006 (HM Government, 2006) was the first piece of legislation in Great Britain to combine all the equality enactments. The Act was intended to provide protection against discrimination across all the different equality dimensions and specifically mentions: age, gender, race; religion, disability and sexual orientation. This led to the merging of the Commission for Racial Equality (CRE), Equal Opportunities Commission (EOC) and Disability Rights Commission (DRC) to create the Equality and Human Rights Commission (EHRC). The Equality Act 2010 (HM Government, 2010) built on this to bring together existing anti-discrimination legislation and also specifically mentions marriage and civil partnership and gender reassignment in addition to the previous six protected characteristics.

In order to carry out research on labour market engagement in light of the equality legislation, it is essential to have data on labour market situation by the dimensions listed above. Previous research has highlighted the importance of having access to data disaggregated by gender since labour market engagement is highly gendered (Fawcett Society, 2013). Much has been written on occupational and industrial segregation by gender (Hakim, 1979; Walby, 1997; Miller et al, 2004; EOC, 2005) and the ways in which men's and women's working patterns differ (Olsen and Walby, 2004; Bradley and Healy, 2008). However, employment patterns also change across the life course with mothers, young men and older men more likely to work part-time (Buckner et al., 2004). Research has also shown occupational and industrial segregation by ethnicity (Lindley et al, 2004; Blackwell and Guinea-Martin, 2005; Simpson et al, 2006).

However, in addition to employment data by single characteristics it is also important to have access to data by a number of demographic variables together to enable disadvantage by multiple equality dimensions to be explored (Carr-Hill and Dixon, 2005). This allows intersectional labour market research where disadvantage is investigated at the intersections of the equality dimensions (Browne and Misra, 2003). This was first suggested by critical race feminists with 'intersectionality' first utilised to describe the employment experience of Black women (Crenshaw, 1989). McBride et al. (2015) presents a succinct argument for expanding the use of the intersectional analysis approach in employment research.

Local labour market data availability

As well as labour market data by single and multiple equality characteristics it is important to undertake analysis at the 'local' level since '*national and regional level analysis ... often conceals and distorts the real employment situation at the local labour market level where men and women actually live, look for jobs and (mostly) find their employment.*' (Buckner, 2008: pg60). Simpson, et al. (2006) illustrated the importance of sub-district level analysis with their research highlighting the variation in economic activity rate by ethnicity at the neighbourhood level. However, there is no standard definition of a local labour market (LLM), with some researchers using travel to work areas (TTWA) (Ballas and Clarke, 2000), and others such as Simpson *et al.* (2006) using neighbourhoods. Thus, in whichever way LLMs are considered in research it usually requires access to sub-district level data. Census data therefore are essential for intersectional local labour market research as they are the only source that provides

robust information on key equality and labour market engagement variables at geographical levels below local authority district. Indeed “*A census is essential. It is the only time when data are collected nationally at a very local level.*” (Diamond, 1999: pg9).

The census standard output in the form of pre-defined tables have long been used by both national and local policy makers as well as academics and other researchers to explore different demographic and socio-economic issues (Simpson *et al.*, 2006; Simpson, 2007; Bailey and Livingston, 2008) at both national and local levels. These census standard output tables are available at geographical levels from country down to output area (OA), the lowest level of census geography for which output beyond counts is available. They cover a broad range of variables with the level of detail related to the geographical level the so the more detailed data are only available for higher level geographies. National, regional and local authority district (LAD) level labour market analysis is enabled by the release of the Samples of Anonymised Records (SARs). These are samples of census returns which allow the researcher to create their own output tables and undertake multivariate analysis, but for 2001 and 2011 but they are not available for geographical areas below LAD.

Thus the census standard output is the only 2001 and 2011 Census data source available at geographic levels below local authority district. In addition, the census standard output is also the data most likely to be used by non-data specialists, as it is easy to access, interpret and present, whereas a certain level of expertise in data processing and statistics is required to manipulate and analyse the SAR.

2001 and 2011 Censuses Standard Output

The data source for this analysis is the 2001 and 2011 Censuses standard table outlines accessed using NOMISWEB, a web-based interface allowing access to aggregate census data, and the Office for National Statistics (ONS) website. For this research, table outlines were downloaded for geographical levels below local authority (LA) (unitary authorities and districts) including ward, middle and lower super output areas (MSOAs and LSOAs) and output areas (OAs). Output areas are made up of groups of socially homogenous (based on housing tenure and type), contiguous postcode areas containing approximately 125 households¹. LSOAs are made up of contiguous

¹<http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/census/output-area--oas-/index.html> (accessed on 19/09/16)

OAs and have an average population of approximately 1,500, whilst MSOAs are made up of groups of LSOAs with an average population of 7,500². MSOA are contained within LA boundaries.

Each table outline was analysed and the number of equality and labour market engagement variables included noted in a recording matrix. Economic activity, occupation, industry, National Statistics Social Economic Classification (NS-SEC), social class, highest level of qualifications, hours worked, employment status and travel to work were used for the labour market variables. Equality variables covered were related to the Equality Act as discussed above and included age, sex, ethnicity, religion, marital status and health/disability. Unfortunately the censuses to date have not collected information about sexual orientation and gender reassignment so it was not possible to include all the dimensions of equality covered by the Equality Act (2010)³. In addition, in the England and Wales censuses questions on disability were not included so limiting long-term illness (LLTI) and poor general health were used as proxies for disability.

Although for this research 2001 and 2011 Censuses standard output table outlines are explored it is important to acknowledge that other changes between 2001 and 2011 could further limit the ability for comparison. These include, but are not limited to, changes in questions asked in the censuses, age groups included in tables and also changes in geographical boundaries (Norman et al., 2013).

Alongside the analysis of the output tables, reports on the 2011 Census output consultation were analysed. This was undertaken to explore the principles of the output strategy and map the decision making process regarding the content of the standard output tables that contained both equality and labour market engagement variables⁴. However, this was not wholly successful due to only the most current version of documents being available on the ONS website and website development often resulted in links to documents no longer working.

²<http://www.neighbourhood.statistics.gov.uk/dissemination/Info.do?m=0&s=1448356520234&enc=1&page=nessgeography/superoutputareasexplained/output-areas-explained.htm&nsjs=true&nsck=false&nssvg=false&nswid=821> (accessed on 19/09/16)

³ Copies of the 2001 and 2011 Census forms can be found here:

<https://www.ons.gov.uk/census/2001censusandearlier/aboutcensus2001/census2001forms> (accessed on 19/09/16)

<http://webarchive.nationalarchives.gov.uk/20160105160709/http://ons.gov.uk/ons/guide-method/census/2011/how-our-census-works/how-we-took-the-2011-census/how-we-collected-the-information/questionnaires--delivery--completion-and-return/index.html> (accessed on 19/09/16)

⁴<http://www.ons.gov.uk/census/2011census/howourcensusworks/howwetookthe2011census/howweplannedfordatadelivery> (accessed on 19/09/16)

Comparison of 2001 and 2011 Census standard output for intersectional LLM research

Analysis of the census standard output table outlines show that the census standard output included 80 tables available at geographical level below local authority district in 2001 (Standard, Key Statistics and Census Area Statistics) and 91 tables in 2011 (Detailed Characteristics, Key Statistics, Local Characteristics) that contained one or more variables related to labour market engagement together with at least one of the equality variables (age, gender, ethnicity, religion, health or marital status) (Table 1). The most common combination of equality variables was age and sex which were included in 26 tables 2001 tables and 24 2011 tables. Just four tables in the 2001 standard output and seven in 2011 included combinations of three equality variables. Overall there seems to have been a move away from tables with multiple equality variables to a single variable (from 43 in 2001 to 34 in 2011 compared with an increase in tables with single equality variables from 37 to 57), thus reducing the ability to undertake intersectional labour market analysis.

Table 1 Census standard output tables by the number of equality and labour market engagement variables: 2001, 2011

Year	Labour Market variables	Equality variables			Total
		1	2	3	
2001	1	25	36	4	65
	2	7	3	0	10
	3	5	0	0	5
	Total	37	39	4	80
2011	1	51	26	7	84
	2	6	1	0	7
	3	0	0	0	0
	Total	57	27	7	91

In 2001 tables included one variable related to labour market engagement as well as at least one equality variable. This increased to 84 for the 2011 output. However, fewer 2011 tables included combinations of labour market variables and at least one equality variable. Again there appears to be a move away from multiple labour market variables in combination with equality variables (down from 15 tables to 7) towards tables with single labour market variables.

Table 2 Standard output tables that were modified 2001-2011

Table number		Equality	Labour Market	Differences
2001	2011	Variables	Variables	
Modified tables				
<i>Tables with fewer equality variables in 2011 than 2001</i>				
S25	LC6301	Sex, health	Economic activity	
S30	DC6401	Sex, marital status	Economic activity	2011 tables exclude sex
S32	LC5605	Age, sex	Qualifications, economic activity	
S119	LC7101	Age, sex	Travel to work (mode)	
S120	LC7102	Age, sex	Travel to work (distance)	
<i>Tables with more equality variables in 2011 than 2001</i>				
S45	DC6101	Age, sex	NS-SEC	2001 table excludes sex
S109	DC6213	Age, sex, ethnicity	Occupation	
S112	DC6206	Age, sex, ethnicity	NS-SEC	2001 tables exclude age
S154	DC6214	Age, sex, religion	Occupation	
S157	DC6207	Age, sex, religion	NS-SEC	
<i>Tables with the same number of equality variables</i>				
S27	DC3306	Sex	Economic activity	2011 swaps sex for age
S35	DC6601	Sex	Occupation, employment status, hours worked	2011 table excludes hours worked

Note: HRP is Household Representative Person.

Table 2 shows the details of changes to census standard output tables between 2001 and 2011⁵. It can be seen that changes to table variables were minimal with only five tables with fewer variables in 2011 than 2001. However, a number of key tables were not produced in 2011 (see Table 3), primarily involving sex, age and qualifications.

⁵ Note that tables that appeared in multiple forms (for example 2001 Census tables S28 and CAS28 which both include data covering sex, age and economic activity) are only included once.

Table 3 Standard output tables that were discontinued 2001-2011

Table number	Equality Variables	Labour Market Variables
S38	Sex	Industry, employment status, hours worked
S41	Sex	Economic activity, time since last worked
S46	Sex, Tenure (HRP)	NS-SEC
S67	Age (HRP), dependent children	Social grade
S113	Sex	Occupation, qualifications
S114	Sex	NS-SEC
S115	Sex	Count of qualifications
S116	Sex	Employment activity, professional qualifications, occupation
S121	Sex	Travel to work (distance), travel to work (method)
S122	Sex	NS-SEC, travel to work (mode)
S129	Sex	Travel to work (distance), travel to work (method) (workplace)

Note: HRP is Household Representative Person.

Prior to each of the 2001 and 2011 Censuses, ONS undertook a detailed consultation process to ensure that the standard output met the needs of census data users. For the 2011 this was undertaken in two phases December 2009-March 2010 and February-April 2011. As part of this consultation process, reports were published outlining the tables that ONS agreed to produce following the 2011 Census and also any subsequent changes to these⁶. Using these documents, changes were tracked to see why tables were changed or not produced after the 2011 Census. However, although some tables (for example S41, S46, S67, S113, S114, S115, S122) were part of the planned output as late as November 2011 they seem to have been subsequently dropped without explanation. Some of these tables were identified by census users during the consultation as being ‘high requirement’ and although listed in the subsequent change spreadsheet they have still not appeared. For example, of the 71 census users who responded to the July 2011 output consultation in relation to table S113 (sex and occupation by highest level of qualification), 51 (72%) indicated that

⁶<http://www.ons.gov.uk/census/2011census/howourcensusworks/howwetookthe2011census/howweplannedfordatadelivery> (accessed on 19/09/16)

this table was a ‘high requirement’⁷. In March 2013 table S113 was still listed as part of the proposed output in the ‘census tables and geographies’ Excel file⁸. Table DC6501EW1a was released for 2011 but this substituted age for sex and was only available at local authority level and above. Despite extensive searching on the ONS/UKSA website and emails to ONS census customer services for additional documents it is still unclear why some of these tables were not produced as planned. ONS census customer services did respond that any commitment to produce tables was made with the caveat that final decisions could only be made after data processing and all tables were subject to processes covering disclosure control and quality⁹. In addition, decisions to change or discontinue tables was made in consultation with ONS topic leads balancing quality, utility, need and disclosure control.

Discussion

The 2011 Census in England and Wales can, by most measures, be described as a ‘success’ (ONS, 2015: pg iii, iv). The estimated response rate was 94% (ONS, 2012), similar to the estimate of return forms in 2001¹⁰, a remarkably achievement given that response rates to other government surveys has decreased over this time (Barnes *et al.*, 2008; Betts and Lound, 2010). It is also comparable to response rates from other census-taking countries (96.3% in Australia, 97.1% in Canada)¹¹. In addition, the response rate in England and Wales was above 80% in all local authorities, a key target for the Office for National Statistics. This was a marked improvement on 2001 when in some areas of the country, namely Kensington and Chelsea the response rate was as low as 64% (ONS, 2015). Indeed, to date, there seem to have been far fewer challenges by local authorities to the 2011 Census population data than for that released after 1991 and 2001¹². This is partly due to the increased resources ONS put into local

⁷ (Annex B)

<http://www.ons.gov.uk/census/2011census/howourcensusworks/howwetookthe2011census/howweplannedfordatadelivery> (accessed on 28/09/2016)

⁸ This no longer seems to be available on the ONS website.

⁹ Email response dated 4th October 2016.

¹⁰ <https://www.ons.gov.uk/census/2001censusandearlier/dataandproducts/qualityofthesensusdata/responserates> (accessed on 19/09/16)

¹¹ <http://www.abs.gov.au/websitedbs/censushome.nsf/home/nonresponserates> (accessed on 19/09/16)

<https://www12.statcan.gc.ca/census-recensement/2011/ref/about-apropos/rates-taux-eng.cfm> (accessed on 19/09/16)

¹² <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmtreasy/326/7022108.htm> (accessed on 19/09/16)

<http://www.publications.parliament.uk/pa/cm201213/cmhansrd/cm120904/halltext/120904h0002.htm> (accessed on 19/09/16)

authority engagement (ONS, 2012) but also the introduction of ‘One Number Census methodology’ for the 2001 Census (Brown *et al.*, 1999) which aimed to produce consistent statistics at all geographical levels, a plan somewhat undermined in practice by the introduction of small cell adjustment method (SCAM) (Boyle and Dorling, 2004).

However, although the 2011 Census, and those before it (in the words of the Registrar General), ‘provide us with the opportunity to get an accurate, comprehensive and consistent picture of the country’s population’ (ONS, 2015: pgiii) and is ‘the only source of directly comparable statistics both for small areas and different population groups, and which are generally consistent across England and Wales’ (ONS, 2015: pgiii), its success or otherwise cannot merely be measured as an accomplished exercise in data collection. Its value comes with the dissemination of the data and its use by Central and Local Government policy makers, businesses, voluntary sector agencies and academic researchers. As the 2011 Census General Report states ‘The ultimate benefits of the census are realised when the users of census data make use of the published outputs.’ (ONS, 2015: pgxi).

ONS (2009a: pg1) states with respect to the 2011 Census output consultation that ‘The starting point for the proposals is the outputs from the 2001 census, with modification as a result of changes in the census questionnaire’. This implied, that if possible, the 2001 tables would be replicated with the 2011 data. However, in practice some tables were modified, due to changes in the questionnaire but also in response to data users as part of the output consultation. Some tables were also modified or withdrawn completely due to disclosure control concerns, however other tables were not produced although a need for these was identified. There seems to be no publicly available audit trail of this decision process.

The reduction between 2001 and 2011 in the availability of census standard output tables combining labour market factors and multiple equality variables limits the ability to undertake intersectional labour market analysis at the local level. Moreover, there was also a change from tables with multiple labour market variables in combination with equality variables to tables with single labour market variables despite ‘a clear case for multivariate analysis’ being acknowledged for the qualification variables (ONS 2006a: pg5) and most of those related to the labour market (ONS 2006b: pgs 7, 9, 11, 13). This reduces the opportunity to explore combinations of labour market factors together with equality variables making some research, such as the gendered

nature of occupational segregation and how this is related to qualifications, impossible at the local level. This is particularly problematic when researching inequality and issues such as over-qualification (Rafferty and Dale, 2008) and 'working below potential' (Grant et al., 2005) at the local level, as this requires tables to include both qualification and occupation. These changes also makes 'policing' the Equality Act (2010) in relation to local labour market inequality more difficult.

Conclusions

The 2011 Census was a successful data collection operation. Furthermore, given the scale of the government austerity funding cuts (ONS/UKSA staff fell In England and Wales from a high of 4,120 in 2010 to 3,550 in 2013)¹³, ONS is to be commended given the quantity and quality of the Census output in 2011. In addition, the data were more diverse with the number of topics covered increased markedly to include a range of questions on identity, passports held, language ability and second homes reflecting societal changes. However, although the total number of standard output tables increased between 2001 and 2011 this was largely as a result of these additional variables.

Research described above also shows an overall increase in the number of tables useful for exploring equality and labour market engagement. However, there was a moved from tables with multiple equality variables and/or multiple labour market factors to single variables restricting the ability to undertake intersectional local labour market analysis. A study of the available 2011 Census output documentation founded limited information on why some planned tables were not ultimately produced. Although it is possible to commission census tables to cover any missing output this takes time, often does not result in tables being easily available or accessible to all researchers, and can be costly in an era of limited research funding. It is hoped that in 2021 ONS will produce the output as planned or introduce a more flexible system where users can specify the output as they require it. Indeed, as ONS itself writes *'the investment of time and resources in a census can only be justified if the results are made accessible and the outputs produced meet user needs.'* (ONS, 2009b: pg 2).

¹³ Source: Annual Civil Service Employment Survey 2010 and 2013 (accessed on 06/04/2016) via NOMISWEB.

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