

Summary of the benefits of census information

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1. Introduction

ONS is consulting on two possible approaches for census taking in England and Wales:

- Once a decade, like that conducted in 2011, but primarily online
- Using existing government data and compulsory annual surveys.

This paper assumes readers are aware of the approaches being considered, their advantages and disadvantages, and the overall objective of the consultation, as set out in the [main consultation document \(C1\)](#). This paper supports that document and sets out an initial assessment of the financial value of the uses of the statistics (and the use of census information for historical research) that would be provided by the two approaches. It should also be considered alongside the [Summary report on user requirements \(C2\)](#).

The paper explains the approach taken by ONS to quantify the financial benefits and the numbers derived to date. This is work in progress; not all the benefits to the economy and society have been financially quantified.

1.1 How users can help

ONS would like help to progress and improve this work by:

- Assessing whether the benefit values included so far are plausible
- Providing further information which can help to assess the financial benefit of the uses that have been identified but not yet quantified.

The final decision on how best to provide population statistics in the future will not be taken solely on the basis of the financial benefits. It will also take into account the quality of the statistics that can be provided, costs, public acceptability and risks. However this work will greatly inform the decision because quantifying the benefits of different census approaches in monetary terms will help ONS draw more objective conclusions.

For more information

Go to www.ons.gov.uk and search on Beyond 2011
Email us at beyond2011@ons.gov.uk

2. Summary of quantified uses

Appendix A lists known users and uses of ‘census information’. This includes both uses of population statistics and uses of the census records that are released after 100 years for historical research.

The appendix also shows the progress ONS has made to date in quantifying the benefits of these uses.

Of the financial benefits quantified so far:

- Some are based on models – some government departments use models to allocate resources and these models include population statistics. The departments have run calculations to estimate the impact the different census approaches might have on their decisions
- Some are based on a combination of evidence and assumptions – information from a subset of users has been used to estimate the total value for the sector or use as a whole.

Some of the uses in Appendix A are not included in the current benefit quantification estimates. This shows that there are a number of uses that have not yet been valued. The quantified benefits which are included in this document are therefore an underestimate of the total benefit. Although it will not be possible to quantify every benefit, it is important to identify and include as many as possible in the final analysis to ensure it is robust.

To enable this to be done, users of census information are asked to provide any information which will help put a monetary value on the benefits of population statistics to the economy and society.

Note that some major uses, for example the impact of population statistics on macroeconomic policy decisions, will be equally well met by either census approach because both would be able to produce good estimates of the total national population. Work to value these is therefore not a priority because their quantification will not provide information that helps ONS to compare the relative advantages and disadvantages of each census approach.

3. Financial quantification of benefits

This section describes the approach taken to quantify the benefits of census information.

3.1 Approach

There are four stages involved in quantifying the benefit of each use:

- Identifying users and uses
- Identifying total financial benefits from each use
- Isolating the proportion of that benefit that results from census statistics produced once a decade
- Adjustments to derive the potential benefit from annual census statistics that could be produced using administrative data and surveys.

1 - Identifying users and uses

The approach taken to identifying uses includes:

- Public consultation (undertaken previously for the 2011 Census, and for the Beyond 2011 Programme in autumn 2011)
- Meeting all major government departments to discuss uses
- Sending questionnaires to all local authorities, with subsequent discussions and meetings
- Meeting and sending questionnaires to commercial organisations, including geodemographers, market research companies and large supermarkets
- Presenting to user groups and discussing with individual users and organisations from all sectors.

Some uses may have been missed, either due to our oversight or in some cases because users may be unaware that they are using information derived (wholly or in part) from ONS population statistics (such as the Longitudinal Study, some commercial products and the Indices of Multiple Deprivation). Consequently the benefits of both census approaches are likely to be underestimated.

2 - Identifying total financial benefits

Users are not always able, or willing, to quantify in monetary terms the value they derive from the information. This might be because the question is somewhat abstract or because it is commercially sensitive.

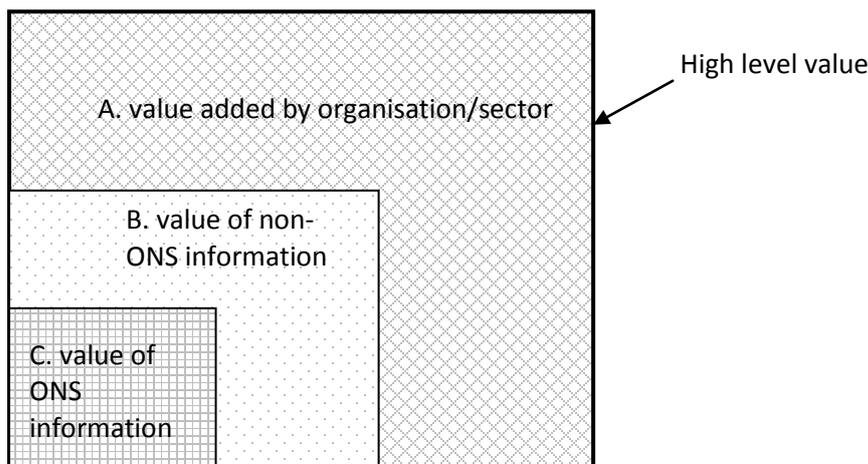
3 - Isolating the benefit attributable to the online census once a decade

High-level aggregate figures relating to financial benefit are often the easiest indicators to obtain, for example, the amount paid for some research, or the size of a commercial sector which uses ONS population statistics. These values then need to be adjusted to include the amount that results directly from population statistics, and exclude the amount attributable to other factors (such as the user's knowledge or information from other sources).

This is illustrated in Figure 1. The total area (A+B+C) is the initial, high level value we are given. Area B+C represents the value of all the information the organisation uses, the remainder of the value (Area A) is the value added to the information by the organisation/sector (for example by analysis and interpretation). Area B is information which is from non-ONS sources. Area C is the value of ONS information – this is what we need to isolate.

This is the value of the information that would be provided by an online census once a decade.

Figure 1: Illustration of how to isolate the value of ONS population statistics



4 - Adjustments to derive the benefit from annual census statistics using administrative data and surveys

Users' responses are based on their current use of census statistics, not the statistics which will be available from a census using administrative data and surveys. The ability of the annual administrative data and survey approach to meet user requirements affects its estimated benefit. To derive the benefit value for this approach the following adjustments have been made:

- An increase to reflect the benefit from increased frequency of census statistics (ie annual rather than once a decade)
- A reduction to reflect the reduced detail and precision in the statistics.

Comments on the assumptions from users in relevant sectors are welcomed.

3.2 Benefits quantified so far for each census approach

Table 1 gives the estimated benefits per decade for each census approach, based on the uses quantified to date. Appendix B shows how the figures were calculated, setting out:

- A description of the use
- The approach and assumptions made to derive a value for that use
- The value of the use for an online census once a decade
- Adjustments for increased frequency, less detail and precision given by a census using administrative data and surveys
- The resulting value of the use for a census using administrative data and surveys.

Table 1 – Financially quantified uses and benefits, by census approach, per decade

Use	Estimated benefit (£m) in 2013 prices	
	Online Census once a decade	Administrative data and annual surveys
Public policy research	46	44
Department for Transport – resource allocation	2	2
Transport – project appraisals	106	74
Department of Communities and Local Government allocation of funds to local authorities (LAs)	5	5
Department of Health allocation of funds for public health to LAs	10	15
LA hypothetical spending on alternative data sources	81	76
Geodemographers/approved suppliers of census information	174	96
Housing planning	160	88
Market research	209	157
Genealogical/social history	4	2
Total	797	557

The figures in the table show that, based on the work to date, the census information that could be provided by an online census once a decade deliver higher benefit than those that could be provided by a census using administrative data and surveys. However the following needs to be borne in mind:

- Many uses are not yet quantified. Including more uses will increase the totals.
- Many of the uses quantified are based on assumptions and estimates. Changes in these could change the totals.
- The figures are based on the benefits we have been able to quantify. This is often the benefit to the user, which may be less than the total benefit to society. Given that users currently get information from a census once a decade, it is easier for them to identify the benefits of that approach than for the annual statistics that could be provided by a census using administrative data and surveys. There may be benefits from the annual statistics that a census using administrative data could provide that they do not anticipate or cannot identify at the moment.

- Benefits need to be considered alongside costs to view the approaches in terms of value for money. Current estimates are that the administrative data approach would cost around two-thirds as much as the online census over the next 30 years.

4. Next steps for benefit analysis

Although some of the benefits of census information have been quantified, there is more work to be done.

4.1 How users can help

ONS is asking users to help progress this benefit quantification work by considering:

- Whether the benefit values included so far are reasonable (particularly the values for each sector, the value attributed to ONS information, and the adjustments made to differentiate between the two census approaches)
- Any uses not yet identified
- Any financial or quantifiable information which can help to value the benefits of uses that are, as yet, unquantified.

It is hard to identify the financial value of census information because it is used alongside other information, not in isolation. Questions that may help identify the financial value include:

- What would be the cost to your organisation of gathering the information you currently get from ONS, if ONS did not provide it?
- What would go wrong if you did not have the more detailed information that an online census once a decade would provide – what would it cost your organisation?
- How much do you currently spend to get population statistics in the latter half of the decade because census statistics are out of date?
- How much of your spending plans are determined by population statistics? How much more profitable/efficient do you estimate this spending to be due to use of population statistics? How much more effective might your spending decision be if you had annual population statistics?

A comprehensive financial quantification of the uses of population statistics will enable a more objective comparison between the census approaches. If only limited uses are financially quantified, those uses will have a disproportionate influence on the total measure of benefit.

While the benefits of many uses may not be quantifiable, such uses will still influence the final decision.

ONS is happy to meet and work with users to help assess the value of population statistics to their organisation. ONS will be organising focus groups for key sectors, where we need to do more work. These will include:

- the commercial sector
- local authorities
- genealogists and social historians
- academics.

If you would like to be involved, please get in touch (beyond2011@ons.gov.uk).

Appendix A – Identified uses of census information

Sector	Use	Progress on benefit quantification				
		Quantified – model-driven estimates	Quantified – evidence and assumption based	Work in progress to quantify	Need to quantify – need more information to do so	Not to be quantified – insignificant difference
1. Government Departments – policy development and implementation	Informing government policy – government departments make numerous public policy decisions informed by population statistics e.g. on immigration, support for carers.				✓	
	Department for Work and Pensions – modelling impact of pensions policy				✓	
	Public policy research		✓			
	Transport – project appraisals		✓			
	Department of Communities and Local Government (DCLG) – policy research				✓	
2. Government funding allocations	DCLG funding allocation to local authorities	✓				
	Department of Transport resource allocation	✓				
	Public health allocation	✓				
	Health allocation			✓		
	Barnett Formula (used to determine funding for countries within the UK)				✓	
3. Local Government	Hypothetical local authority spending on alternative data		✓			
	Various uses (economic regeneration, transport, social services, school roll planning, other services)				✓	

Sector	Use	Progress on benefit quantification				
		Quantified – model-driven estimates	Quantified – evidence and assumption based	Work in progress to quantify	Need to quantify – need more information to do so	Not to be quantified – insignificant difference
4. Macroeconomic policy	Bank of England use in managing economy e.g. setting interest rates					✓ ¹
5. Providing a context and improving other statistics	Total populations (or subsets of the population) provide the denominator for numerous statistics expressed as rates, for example the unemployment rate, mortality rate or teenage pregnancy rate.				✓	
	Providing a basis for adjusting for bias in surveys – both run by the public and private sector, including the social surveys run by ONS.				✓	
6. Equality and Diversity	Equality and diversity assessments by public authorities. Monitoring disadvantage.				✓	
7. Welsh Government	Welsh Government allocation to LAs			✓		
	Welsh Government allocation to local health authorities			✓		
8. Major infrastructure	Informing decisions on long term public sector capital investment projects				✓	
	Flood/emergency planning				✓	
	Planning for demand for utilities / telecommunications				✓	
9. Academics	Academic research				✓	
10. Third sector	Various				✓	
11. European Union	Funding allocations – for example the European Social Fund is primarily allocated to regions on the basis of GDP per capita					✓ ²
12. Commercial	Geodemography and approved suppliers of census information		✓			
	Housing planning		✓			
	Market research		✓			
	Store location				✓	
	Other uses (including targeted marketing, financial services product design, insurance)				✓	
13. Individuals	Genealogy		✓			
	Social history				✓	

¹ Based on advice from Bank of England that whilst population statistics are essential for macroeconomic policy decisions, the national population estimates produced by either census approach would be sufficiently accurate.

² At national and regional level, the population estimates produced by either approach would be suitably accurate.

Sector	Use	Progress on benefit quantification				
		Quantified – model-driven estimates	Quantified – evidence and assumption based	Work in progress to quantify	Need to quantify – need more information to do so	Not to be quantified – insignificant difference
14. General	Influencing national debate – for example, the release of 2011 Census information sparked debates about the health of carers, changing religious affiliation and ethnic diversity.					✓ ³
	Credibility of ONS information– widely recognised as nationally consistent and independent hence useful in contentious decisions (for example on housing and transport schemes).					✓

³ Most of these debates used information at regional or national level. Both census approaches could provide sufficiently accurate information at this level

Appendix B – calculations of benefit values per decade

Description of use, key information used and, approach and assumptions made to value the contribution of population statistics	Benefit from online census once a decade	Adjustments		Benefit from census using administrative data and annual survey
		For increased frequency	For reduced detail and precision	
Government departments – policy development and implementation				
<i>Public policy research</i>				
Use - Government departments commission academic research in order to better understand specific policy areas. Information used – predominantly information about population characteristics for small geographic areas. Assumption - Research is worth at least what the funder paid for it (if expected benefit is not thought likely to equal or exceed expected cost, research would not have been commissioned).	£46m	x125% ⁴	x75% ⁵	£44m
<i>Department of Transport</i>				
Uses - transport project appraisals: local authority major schemes, Highways Agency major schemes, National Rail Model, Transport for London grant, social and distributional impact analysis. Information used - wide range of information at all geographies including substantial use at Output Area level. Approaches - (1) Estimated the cost of delays to projects due to less accurate information (as they collect information from alternative sources and/or are subject to more challenges to schemes). (2) Estimated the cost of additional spending to collect information or to increase the budget for analysis.	£106m	Various – different factors applied for each use based on DfT advice.	Various – different factors applied for each use based on DfT advice.	£74m

⁴ ONS assumption

⁵ ONS assumption

Description of use, key information used and, approach and assumptions made to value the contribution of population statistics	Benefit from online census once a decade	Adjustments		Benefit from census using administrative data and annual survey
		For increased frequency	For reduced detail and precision	
Government funding allocation				
<i>DCLG allocation of funds to Local Authorities</i>				
<p>Use - From 2013-14 the local government sector retains 50% of the local business rates raised (previously all business rates were redistributed to local government from DCLG via formula grant). A start-up funding assessment was calculated which set the distribution of Revenue Support Grant and formed the starting point of the rates retention. The start-up funding assessment total of £26.1bn in 2013-14 was allocated using formulae which use population statistics, amongst other information.</p> <p>Information used - Local authority level population projections, estimates and characteristic information at a range of geographic levels.</p> <p>Approach to benefit quantification– (1) Change revealed by 2011 Census can be used as a basis for calculating the benefit of population statistics provided using different census approaches. (2) DCLG ran part of the Relative Needs Based elements of the formula funding component (i.e. not the whole model, and excluding grants), using population projections for 2013 based on (i) 2011 Census information and (ii) 2010 mid-year population estimates to provide a rough assessment of the impact on the allocation of a change in the accuracy of population statistics.</p>	£5m (first decade)	n/a (based on run of model)	n/a (based on run of model)	£5m (first decade) ⁶
<i>Department of Health allocation of funds for public health to LAs</i>				
<p>Use - The Department of Health allocated £2.7bn in 2013/14 to LAs for them to spend on promoting public health and wellbeing.</p> <p>Information used - the allocation formula uses LA population projections (derived from estimates). Information of the quality generated by both census approaches has been run through the allocation formula to calculate the impact on allocations and the benefit of improved allocations (calculated based on HM Treasury guidance).</p>	£10m (first decade)	n/a (based on run of model)	n/a (based on run of model)	£15m (first decade)

⁶ Will vary depending on frequency and timing of model updates.

Description of use, key information used and, approach and assumptions made to value the contribution of population statistics	Benefit from online census once a decade	Adjustments		Benefit from census using administrative data and annual survey
		For increased frequency	For reduced detail and precision	
<i>Department for Transport</i>				
Integrated Block Grant for schemes costing less than £5m	£2m	X110%	-	£2m
Local government				
<i>Local authorities' hypothetical spending on alternative data sources</i>				
Use - Without ONS information there would be additional cost to them of sourcing alternative information. Information used - Population characteristics for small geographic areas. Approach - Survey of local authorities giving estimates of likely spend to get information.	£81m	x125% ⁷	x75% ⁸	£76m
Commercial sector				
<i>Geodemographers/ approved suppliers of census information</i>				
Use - Geodemographers and approved suppliers of census information combine census information with information from other sources to create products which categorise small geographic areas by the types of people living there. Data used – A range Approach - Survey plus follow-up interviews have given an estimate of the value of the sector at £200m per year Assumptions - Value attributable to information use is 30%. Of that 30%, one quarter of the value is from census information.	£174m	x110% ⁹	x50% ¹⁰	£96m
<i>Housing planning</i>				
Use - Housing planning consultants use census information to profile local areas. These profiles identify housing need to support the planning process, meaning new housing is more likely to be built in the best location. Information used – range of population characteristics for small geographic areas, particularly at Output Area level. Approach - Discussions with market have given an estimate of the value of the sector of £100m. Assumptions - Value attributable to information use is 30%. Of that 30%, half the value is from census information.	£160m	x110%	x50% ¹¹	£88m

⁷ ONS assumption

⁸ ONS assumption

⁹ ONS assumption

¹⁰ ONS assumption

Description of use, key information used and, approach and assumptions made to value the contribution of population statistics	Benefit from online census once a decade	Adjustments		Benefit from census using administrative data and annual survey
		For increased frequency	For reduced detail and precision	
<i>Market Research</i>				
Use - Market researchers directly use the information provided by the census in the research they do for customers. They also use the small area census information to adjust survey results to ensure that they are representative. Information used – range of population characteristics for small geographic areas, particularly at Output Area level. Approach - an estimate based on surveys of the value of the part of the sector which uses census information of £225m per year. Assumptions –Value attributable to information use is 30%. Of that 30%, one quarter is from census information.	£209m	x150%	x50%	£157m
Individuals				
<i>Genealogy</i>				
Use – Unlike all the other uses, this value relates to individual records, not statistics. The individual records are released 100 years after the census. These enable research about individuals and families. Historians also make use of these records in order to build a picture of society at a point in time. Approach – (1) A 2009 Office of Fair Trading report valued the genealogical sector in the range of £50-£60m per year. (2) Value of records for one census is £7.1m, reflecting that records for seven censuses were commercially available online at the time of valuation (1841-1901) (3) Because individual records will be released in 100 years' time, the benefit in current terms is about 5% of their current value. (4) Each future release of individual records will add further value.	£4m for each Census.	-	x40% ¹²	£2m

¹¹ ONS assumption

¹² Individual records will be available for fewer people (50% of population per decade) from the annual surveys. This reduces the value as fewer records will be available. The fact that there will be records for fewer people will discourage use of the resource, so further reducing benefit (by an estimated 20%). Archiving administrative data may add further benefits, but this is not quantified here as it is not yet clear what archiving would be possible.