

Institute and Faculty of Actuaries (IFoA) - Collated responses to ONS Consultation 'The census and future provision of population statistics in England and Wales'

Q1: What are your views of the different census approaches described in this document?

As the UK's Chartered professional body for actuaries, our members use a range of data sources in the course of their work, including census data. The comments below are based on the experience of our members and their use of census data.

With few data sources available that can provide as complete a picture of population changes over time as the census, we urge the ONS to retain the robustness and consistency of the data produced whichever option it chooses. It is important that data used is reliable and consistent over time and that any discontinuity in the time series of the data used by actuaries (and others) is managed by the ONS to ensure that the work of users of census information can continue without those users incurring disproportionate additional costs.

The information derived from the census and produced by the Office for National Statistics may be used by actuaries as a reference and for the validation of, and comparison to, other data. Many of the databases that underpin the consumer classification software packages used by actuaries as they develop insurance products will also rely on census data. Whilst actuaries will use a variety of data sources and direct use of the census data in isolation is limited, the census remains an important source for our members in their day-to-day work as well in the research produced by the IFoA itself.

An example of such a use of census data by the IFoA is through the Continuous Mortality Investigation (CMI). The CMI analyses information from pension schemes and insurance companies, producing tables of data that are used by actuaries and the insurance industry. Census data is very useful for validation purposes and accurate population data is essential for the mortality projection work of CMI (and others).

As well as data on mortality, morbidity and marital status used by actuaries for pensions and life insurance, actuaries working in general insurance also use information such as housing and motoring data to properly assess the risks and, therefore, premiums required for issuing insurance products that cover risks in these areas.

The public interest is well served by having available a data source that is independent of the insurance industry. Having a data source that is freely available, and which covers the whole country, is important to researchers who are investigating population-wide effects. Data collected by insurance companies is naturally biased towards those segments of the population that take out insurances which can make it inappropriate for population-wide studies or projections.

It is our understanding that the availability of the data currently produced will not change (excluding localised results). Therefore, as a general principle, both approaches could be acceptable means to provide the type of information actuaries will use, but more frequent, reliable data would be of even greater value. However, we see a number of risks associated with both approaches which we set out in our answer to Question 8. In particular, we note the risk associated with a discontinuity of the series of data collected and the potential loss of currently used information. It may be beneficial for the ONS to clearly identify the users of this information, their inter-dependencies, and what the potential impacts of the discontinuity of these data series will be for them.

We now comment on the specific options proposed in this consultation:

Option A – A detailed census gives credible results. However, this reliability degrades over time. This was seen in the latest census when there was an adjustment to the previous projections of populations alive at very old ages.

There are few other sources of high quality data that can be used at the highest ages. Furthermore, there is a growing need to understand the mortality patterns of the very old. One possible aspect of this is derived from the sensitivity of some financial products to the mortality of this group. This is a key concern for actuaries working on aspects of long term care provision or annuities.

It is not just at older ages where a good understanding of population trends is important. What is happening at younger ages is also of interest to actuaries – for example, the significant changes in younger age populations that were also witnessed in the last census. This was most likely due to mis-estimations of migration and it is unlikely that any method other than a robust census would have identified this

Option B – More frequent data is appealing. However, it would be necessary to ensure that the coverage is robust. This is of particular concern at elderly ages, where there is a risk that the quality and richness of data may be lost if administrative surveys are adopted. Furthermore, clarification on how the ONS intends to validate this data is required, e.g. using births and deaths registrations and data on migration.

We raise a number of concerns on this topic in our answer to Question 8. We also comment on the impact of the potential loss of highly localised data in Question 4.

Other options

We would hope that the ONS still has flexibility to consider variants or hybrids of the options proposed and that other potential outcomes have not been ruled out.

In particular, the IFoA suggests that the ONS explores a solution similar to the Canadian system, where the census is held every five years (limiting the variability that a census every ten years can bring) and has not been overly burdensome on households. Cost breakdowns were not available in the consultation. However, we would be interested in the savings that could be generated from encouraging an online solution in conjunction with more frequent censuses (even if these had a slightly reduced scope and some information was sourced from existing government data).

In summary, we would urge the ONS to explore other alternative solutions that represent the best features of Options A and B.

Delivery/Transitional Risk

With any new options chosen we would recommend further pilot studies, back-testing and parallel running be carried out to mitigate the risks associated with large-scale changes and so give confidence that the changes are viable.

It is important that regardless of the approach that is ultimately adopted, the granularity of the data required by users is not lost.

Q2: Please specify any significant uses of population and housing statistics that we have not already identified.

Population Statistics - As already noted, the mortality rates derived from the population data are an important resource for actuaries in explaining mortality and morbidity experience and anticipating

future changes to mortality and morbidity. The size of the data-set makes it the most statistically robust source currently available for assessing trends over time. However, to the extent that having credible figures for lives and deaths at each age and gender would not be negatively impacted by the proposals, then the impact for our members and the work they do will be minimised. As a significant driver of mortality rates and trends is socio-economic status, ideally this data would also be available alongside mortality data. We would also note that postcode or Output Area is a strong indicator of socio-economic status and this breakdown could be used in the absence of other indicators.

Housing statistics – This information is of value for general insurance in terms of supporting greater understanding of the nature of housing in the UK and hence, being able to recognise the risk for household insurance and by extension, travel insurance.

Q3: Please specify any significant additional benefits of population and housing statistics that we have not already identified.

Population Statistics - Data of this type is necessary to prove that age is a significant differentiating factor for use in insurance as a rating factor to set premiums. For example, data of this kind has been used to justify the continued use of age in the light of the EU Age Discrimination Directive. It is the completeness of its coverage, together with the fact that it is collected independently of the insurance industry that gives this data credibility with commentators.

We also note that, without this data, population projections would be more difficult and potentially less reliable. There are many potential impacts that flow from this, but one that might be less obvious is that greater amounts of capital may have to be held by insurers and pension schemes. Fewer sources of data means there is more uncertainty and hence greater margins need to be maintained in capital to allow for that uncertainty. This is due to the risk that in quantifying models, the data used may not be properly representative of the population being modelled. Less data with which to check the parameterisation of models equates to more risk and hence, more capital. This in turn could result in a higher cost of insurance products for the consumer.

Housing Statistics - Buildings cover insurance is a conditional element for most mortgages. Having a record of the structure and property type, age of housing, and where new housing is built is useful information in understanding the risks involved in covering particular properties and setting the level of premiums charged for these types of insurance products.

Further research is required to determine the impact of building new housing on flood plains and census data could be of benefit to that research.

Q4: What would the impact be if the most detailed statistics for very small geographic areas and small population groups were no longer available? High, medium, low, or no impact?

The level of the impact depends on which particular statistics are removed. There are some areas where the granularity of this data is particularly important because there are variations between different population groups (and geographic areas) that other data sources do not show. Removing detailed statistics such as mortality and morbidity developments for the elderly population or transport details for young motorists (aged 17-25) are an example of this. Given trends in rates of improvement in longevity, the risk associated with losing this information may have greater impact. Loss of detailed statistics may reduce the number of rating factors available for insurers to develop their understanding of the risks inherent in their portfolio. The additional uncertainty faced will mean they need to take a more prudent view of their risks, which in turn, may lead to higher reserves being required and higher costs borne by policy holders than would be required if more granular data continued to be available.

Losing information for very small geographic areas and small population groups creates more uncertainty about the interactions between, for example: age, socio-economic group, current health status and future survivorship statistics within those groups and hence lessens the understanding of those groups.

It is assumed that statistics such as age, sex and marital status would continue to be available for these groups. Such data are significant differentiating factors and used in insurance business to determine at what level premiums should be set. It is important that such data is not lost and, furthermore, that there is clarity on how it will be collected in future to ensure that data of this kind is consistent and reliable over time.

Q5: What would the additional benefit be if more frequent (i.e. annual) statistics about population characteristics were available for areas like Local Authorities and Electoral Wards? High, medium, low, or no impact?

More frequent updates of the statistics used to derive future developments in mortality and morbidity experience can be used to more frequently check the progress of population development relative to the projections.

More frequent updates on statistics, such as the types of housing, age of housing and where new housing is built, should allow the pricing of building cover insurance to better reflect the specific risk for each property.

We also note that, under Option B, updates will not be available for areas smaller than an electoral ward. Therefore, if industry intends to use small area data for risk segmentation, this can only be provided by Option A.

Q6: Please specify any significant uses of census information for historical research that we have not already identified.

As discussed in our answer to Question 2, we note that the size of the data-set makes it the most statistically robust source for assessing trends in mortality rates over time. Trends, by definition, are only established over time so a change in, or loss of, a key data-set risks the accurate observation and understanding of a developing trend, which therefore impacts future projections. The risk of discontinuity in this series associated with the proposed changes should be properly accounted for by the ONS.

Q7: What advantages or disadvantages for genealogical or historical research can you see from a move to a solution based on archiving administrative data sources?

This aspect is not directly relevant to the work of actuaries and so we have chosen not to comment.

Q8: What are your views of the risks of each census method and how they might be managed?

8.1. Option A - On-Line Census

8.1.1 Identified Risks

The risks identified in the consultation paper focus on delivering adequate response rates. These are most likely already risks or issues for the ONS but the move to an on-line format may change the impact of these potential risks. For example, the use of the internet as the preferred delivery channel is likely to exacerbate the risk of an incomplete data-set that may be associated with the lack of access (or inadequate access) to the internet by some households.

It would be worthwhile for the ONS to consider a broader scope for risk identification for its risk register. For example, a delivery/transitional risk in moving to an on-line platform could be a threat to scope (and hence budget) during the changeover as a result of having to optimise systems for the growing range of available mobile devices and operating systems combinations that may need to be supported.

Similarly, the ONS may wish to consider broader operational risks for the ONS as an organisation as a change in channel introduces a new range of risks to the organisation and data credibility. For example, is there a need for more specialist resource in ONS to deal with user experience, IT security/data protection or IT testing? More broadly, how does the change of channel impact the current operating model (systems, processes, and people)?

8.1.2 Mitigants for identified Option A risks

As a mitigant to the risk of lower response rates, the ONS may wish to consider incentivising rather than fining individuals; offering assistance to customers, e.g. help at libraries, schools or in the home; and reviewing lessons learned/tactics used by other countries or from data orientated businesses such as market research companies in increasing the response rate. There are other more radical options that could be considered including changing the obligations on individuals so that they are legally responsible for the upkeep of the information held about them.

Mitigants for lack of household access to the internet could include public provision of centres to complete the census (e.g. schools, libraries) or home assistance (e.g. a census official visitation). However, it remains unlikely that all customers will be comfortable using the internet so, as the ONS suggests, other delivery channels could be offered on request, e.g. IVR/natural voice telephony option or paper.

In dealing with suboptimal response rates and lack of household access, it may be worthwhile for the ONS to conduct further research as to what could work best before expenditure is committed to any detailed propositions. This could include working with agencies that deal with population segments unlikely to have household internet access.

Mitigants for privacy will need to include (as the ONS explains) data protection so that data cannot be used for unauthorised purposes. The rationale for questions asked and why data is collected should also be reviewed on an ongoing basis to ensure that data protection regulations are not infringed upon. Communication to the general public needs to be considered for significant changes in method or questions set.

8.2. Option B - Admin Data and Surveys

8.2.1 Identified Risks

As with online risks, it would be worthwhile for the ONS to extend its risk register to consider a broader scope for risk identification.

8.2.2 Mitigants for identified risks for Option B

Mitigants for the risk of discontinuities in the data currently produced caused by a change in method could include developing a data road map so that collections of different data items and analysis could be utilised for pilot studies. Lessons learned from the other countries noted in the consultation paper that have already implemented this method could be reviewed and additional expertise could be sought from these countries to help embed new ways of working.

The continuous time series of census data is a critical aspect of the statistics produced. Changes to the time series or type of data collected will need to be carefully managed. However; it is unlikely that

the discontinuity risk can be fully mitigated in advance. It would be worthwhile understanding the lessons learned from other countries regarding what level of error has occurred as a result of changes in time series or data collected so that this can be shared with stakeholders to create a common understanding in advance of any change.

Mitigants for the risks associated with using data gathered by other departments could include reviewing and developing change control processes and governance process regarding the data that the ONS needs for running the census. The ONS could be given a sign-off authority for the relevant data items within these departments as well as a formal role in decisions about changes to key data sources as suggested in the consultation paper.

Mitigants for risks associated with suboptimal response rates and privacy concerns have already been considered in 8.1.2.

Q9: Are there any other issues that you believe we should be taking into account?

The following are further points ONS will want to consider:

- As per question 1, the choice between A or B may not provide the most optimal solution or that the chosen approach ought to be one without the other. For example, could a five year census (enabled by on-line technology) be supplemented by data production from other government departments to provide an overall package of improved data frequency?
- The example of the recent change in the application of the EU Gender Directive to insurance businesses, where the European Court of Justice removed the right of companies to vary the price of insurance products by gender, has confirmed the need to continue to collect quality data on all likely drivers of risk to enable the key measurable factors to be determined.
- As per our answer to question 8, we would recommend that the risk assessment is broadened.