Developments in official population statistics

Strand organizers: Jim Newman, James Robards (Office for National Statistics)

Monday 10 September 4.45pm

Administrative Data Population Estimates for Northern Ireland
Kathryn Ewan, Northern Ireland Statistics & Research Agency (NISRA)

This presentation will describe how NISRA have used administrative data to estimate the size of the usually resident population through the creation of a prototype statistical database of all usual residents. The statistical database is used to create Administrative Data Population Estimates (ADPE). The ADPE will be used to quality assure the official Mid-year population estimates and the statistical database of usual residents will be used to supplement the 2021 Census enumeration. How the statistical database of usual residents will be used to supplement the 2021 census enumeration will also be described.

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How integrated data can be used for public good
Becky Tinsley, Admin Data Census, Office for National Statistics (ONS)

ONS has been using integrated data to research into the Government ambition that "censuses after 2021 will be based on alternative sources of data." The Administrative Data Census project has made progress in: producing a range of Research Outputs that are typically produced by the ten-yearly census; comparing these outputs with official statistics; and seeking feedback from users. Research so far has covered the size of the population, household statistics (including the size and structure of households), and a range of population characteristics including income, labour market status, commuting flow patterns, ethnicity and most recently, nationality. These outputs have used a range of integrating methods and data sources including administrative data, commercial (aggregate mobile phone data) and survey data. We are now expanding our research to look beyond what is traditionally produced by the census to understand how integrated data can be used to provide new insights into society. Using integrated data brings a range of new challenges in the production of statistics to meet user needs such as: understanding the data quality and definition differences; developing new methods to measure and adjust for coverage errors; and producing multivariate small area outputs when variables come from different data sources with different coverage errors. A key part of making the best use of the vast range of data available is to demonstrate the public good of using these data. This involves explaining: • Why the statistics are important to shaping public policy • The benefits these statistics bring to the public • How we are protecting the data we are using. This presentation will explore the new types of analysis that are possible from integrated data, the social benefits of producing these outputs and our plans to promote understanding of these benefits.

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Developing international migration statistics from health data to inform the policy debate
Ali Dent and Chloe Pearce, Integrated Data Division, ONS

Background: International migration flows into and out of the country are currently estimated using the International Passenger Survey (IPS). Whilst significant improvements have been made to the IPS in recent years, the landscape and demands for information have shifted and continue to shift. This is one of two presentations showing examples of the work ONS is currently undertaking to make better use of new and existing data sources to better understand international migrations flows to the UK and the impact these migrants have on the economy and society. Objective: ONS are considering the feasibility of using existing data sources to measure the long-term flows of international migrants into and out of the UK. Health data provides information on people who register with a GP with a previous address overseas. New health data also provides information on an individual's changes in status. By making best use of these data sources, we

can better understand the journeys of migrants. Methods and Results: By identifying non-UK nationals and studying their interactions with the health system over time, including any changes in status, we have been able to assess when they arrived and if they have been in the UK for 12 months or more (which is in accordance with the UN Definition of a long-term migrant). We have compared our 'potential long-term immigrants' with our official LTIM series. Our results show that using health data alone, whilst useful in measuring the activity of some migrants, does not provide the full picture of long term migrants coming to live in the UK. Conclusion: Health data alone does not provide the full picture of long term migrants coming to live in the UK. However, it may be possible to over-come some of the limitations in the future by linking health data to other administrative data sources to improve coverage and address measurement errors. Contribution: By making use of the powers available under the Digital Economy Act (2017), ONS have an ambitious programme of work to develop and improve international migration statistics that puts administrative data at the core of migration statistics by 2019. In addition, linkage of administrative data sources from across government will provide greater insight into migrants' journeys and lives and provide a richer set of statistics to inform policy decisions and public debate.

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Improving and developing international migration statistics to inform public and policy debate: Using Admin Data to estimate the impact of non-EU migrants on the UK economy

Joe Gisby and Hannah Teare, MIgration Statistics Division, ONS

Background: International migration flows into and out of the country are currently estimated using the International Passenger Survey (IPS). Whilst significant improvements have been made to the IPS in recent years, the landscape and demands for information have shifted and continue to shift. This session provides two examples of the work ONS is currently undertaking to make better use of new and existing data sources to better understand international migration flows to the UK and the impact these migrants have on the economy and society. Objective: To provide analysis on how Admin Data can be used to measure the impact of non-EU nationals on the UK economy. Methods and Results: Non-EU nationals can be identified within linked administrative data sources in two ways: • Unique identifiers - such as National Insurance Numbers allocated to non-UK nationals working or claiming benefits in the UK • Match key identifiers – using demographic variables such as name and date of birth. Identifying non-EU nationals within linked admin data source such as HMRC tax and DWP benefit data enables us to better understand how they are interacting with the UK economy, and assess what impact they are having in comparison to UK and EU nationals. Conclusion: Analysis of a feasibility extract of linked administrative data has found that benefits data can provide a greater insight into how international migrants interact with the UK benefits system, as well as provide signs of activity for non-EU nationals residing in the UK. Contribution: By making use of the powers available under the Digital Economy Act (2017), ONS has an ambitious programme of work to develop and improve international migration statistics that puts administrative data at the core of migration statistics by 2019. In addition, linkage of administrative data sources from across government will provide greater insight into migrants' journeys and lives and provide a richer set of statistics to inform policy decisions and public debate.

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9.00am Wednesday 12 September

Do we know our data as well as we think we do?

P. Humby, S. Reeves, J. Buxton; ONS

To help answer this question, in 2016/17 ONS' Population Statistics Division produced a series of quality reports on the administrative data sources that contribute to their outputs. This presentation will set out what we were looking to achieve and how we went about it. It will touch on areas where we know our data well and acknowledge where we do not know our data sources as well as we should. Inevitably, this means there are areas we have discovered where we need to improve (and these are not just about understanding the data). The benefits of this work both to ourselves and to those

who use our statistics, as we perceive them, will be outlined. As we are in the process of producing an updated series of reports, including new sources to reflect our changing use of data, the improvements that we have made (based on feedback received) will be outlined. We are enthusiastic about what you think of what we have done: what we have done well, what we could improve, what we have missed, what you use them for. While we are happy to get this feedback at any time, this is a great opportunity to do so face-to-face!

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A shared data set: Aspiring to successful outcomes for vulnerable children in Scotland through strategic needs assessment and performance measures - Implications for official statistics

Cecilia Macintyre, Scottish Government

As part of the Child Protection Improvement Programme, the Scottish Government has committed to working with local areas to improve data and evidence to support continuous improvement. This is in recognition of the importance of having good baseline data to identify and test out areas for improvement as well as planning and performance. A shared dataset focusing on vulnerable children and young people is being developed to help partners who are responsible for, and have a remit for child protection and corporate parenting to gather data and evidence that can be analysed and used to plan and deliver services and enable them to demonstrate performance. The presentation will describe the process of identifying the components of the shared dataset, and summarise the findings from the consultation across a wide range of partners involved in child protection. It will identify the implications this has for the current national and official statistics published by Scottish Government, and present findings of analysis of data collected on looked after children, and the child protection process to meet the needs of users of the shared dataset.

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Revisions and the chain of official data: how revised population estimates and updated methods feed into subnational population projections and other official demographic estimates

Neil Park[1], Tim Pateman[1], Andrew Nash[2], Olga Krikun[2]; [1]Population Estimates Unit, ONS, [2]Population Projections Unit, ONS

ONS has a commitment to continuously seek to improve its population statistics, without undermining usefulness to users by making constant changes. The most substantial set of changes that is planned for implementation between the 2011 and 2021 Censuses is being released across 2018. Firstly, a revised back-series of mid-year population estimates for mid-2012 to mid-2016 was published on 22 March 2018. The revisions incorporate the latest admin data available for distributing international immigration estimates to the local authority level, and a new model to distribute international emigration. While changes for most local authorities are relatively small, many local authorities with large proportions of students are revised downwards. The subnational population projections (SNPPs), published on 24 May 2018, use the revised mid-2016 estimates as their base and also use the revised component data. This part of the presentation focuses on the driving forces behind the 2016-based figures stemming from revisions in mid-year estimates, assumptions made in national projections and the SNPP-specific changes in methods. It will also touch on challenges around the interpretability and uses of projections. The SNPPs in turn will feed into the 2016 based Household Projections, to be released in September 2018. Revised small area population estimates and reweighted Labour Force Survey estimates will also follow later in 2018.

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Time-to-death and National Statistics in Scotland

Maria Kaye, National Records of Scotland (NRS)

A person's age is usually measured as chronological age, the number of years since birth, but it can also be measured as thanatological age, the number of years until death. Unlike chronological age, thanatological age is affected by life expectancy. For example, in Scotland, a man aged 65 in 1981 could expect to live 12 more years. A man aged 65 in 2016 however, could expect to live a further 17.5 years; in thanatological terms, he is 'younger' than the man in 1981. This is

significant, because literature shows that wellbeing in old age correlates more strongly with years remaining than years lived. Therefore, as life expectancy increases, we would also expect an increase in the number of years a person would be in good health and able to actively participate in society. Life expectancy in Scotland has increased since the 1980s but in recent years, the rate of increase has been stalling. Scotland currently has the lowest life expectancy in western Europe and a rapidly ageing population. Currently, national statistics publications report on both life expectancy and ageing but do not explore how they might interact. Here we use life expectancy and population structure to examine how Scotland's population has aged in both chronological and thanatological terms and how it will continue to age. We present ways in which these statistics might be used alongside the official statistics currently produced by NRS, in order to identify the challenges and opportunities Scotland faces and to inform policy and planning.

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Measuring if we matter
Johannes Hechler, ONS

ONS ultimately exists to guide policy decisions. But it is very hard to actually measure that impact (if any). We monitor the media, and individuals know anecdotes where a policy used our data. But we have no systematic, complete, quantitative proof that we fulfil our mission. And that for a statistical office! An experimental project aims to change that. Most government papers are available as pdfs on gov.uk and reference the ONS products they use. We run a simple word search for ONS products in every document and record results along with the department, publication date and document type (policy, research, consultation etc.). This way we can track who uses which product - by department, product and over time. Now product owners get a tidy, complete list what impact their data had. Management get tangible evidence how ONS is performing overall. In addition staff get to learn coding in an informal, engaging way. The project can ultimately scan for any product, by any data producer. The talk will explain what the scan does, what it doesn't, show first results, and future steps.

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