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INFORMATION ON MIGRANTS IN REGISTER-BASED CENSUSES

**Counting in and out:
an overview of UK data sources to measure migration**

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1. INTRODUCTION

1. This paper provides an overview of how the UK Office for National Statistics measures international in- and out migration as one of the key components of its population statistics. The paper will discuss the data sources and methods currently used, and will highlight some of the issues and problems in relation to these. The second part of the paper will discuss a some recent work where improvements to migrant statistics sources have been implemented or are under consideration, and will provide information on additional measures planned for the 2011 Census to improve our migration statistics. Finally it discusses the potential role of some recent administrative data systems in the measurement of migration. It concludes with a discussion on some of the general issues relating to measurement of migration based on administrative data.

2. CURRENT POPULATION AND MIGRATION STATISTICS SOURCES IN THE UK

2.1. Population statistics: the importance of measuring migration

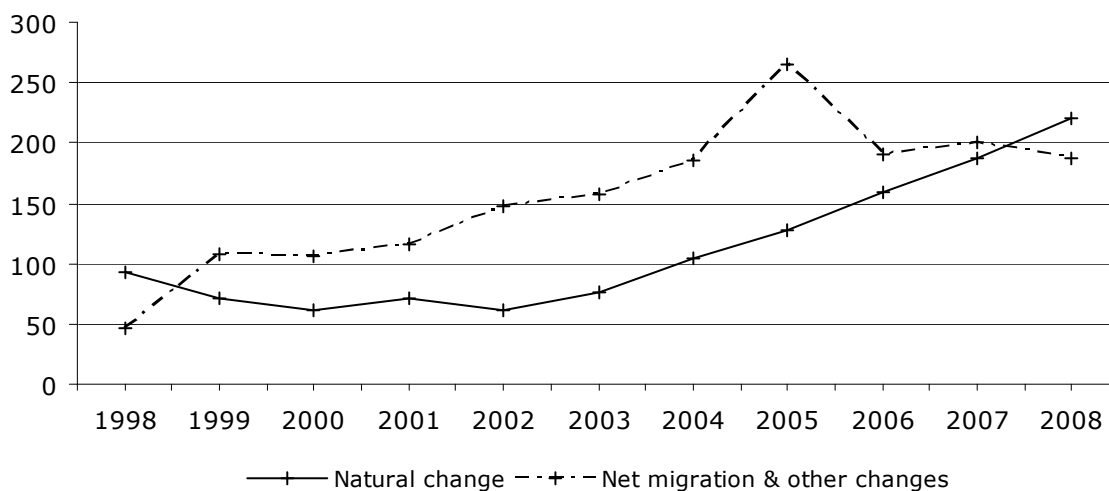
2. The rate of change in the population of the UK has been increasing over the last few decades. The greater mobility of the population has meant that more people move in and out of the country than ever before. At the same time, there have been transformations in the other components of population change. Both birth and death rates have declined over the last ten years, and international migration has taken over as one of the key drivers for UK population growth,

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although this trend changed again in 2008. These changes in the components of the UK population are shown in Figure 1 below.

3. With the large number of international migrants entering and leaving the country, there has been increased attention on how fit for purpose the national, regional and local estimates of migrant numbers are. Population data are used widely for resource allocation, in managing the economy and in policy formulation and any actual or perception of an inaccurate count leads to concerns that money is being distributed, policies formulated or key decisions taken in a sub-optimal way without the comprehensive evidence necessary to underpin those decisions.

**Figure 1 Components of population change, mid-1998 to mid-2008, United Kingdom
Thousands**



2.2. UK population statistics: sources and issues

4. The Office for National Statistics produces a wide variety of data on the population and its characteristics. Although the decennial Census is a key data source for a wide range of statistical outputs there are other data sources which are routinely used to produce population data.

5. Currently statistics are produced within various broad domains:

- Population counts (e.g. counts by geography, sex and age)
- Population flows (births, deaths and gross migration flows)
- Population structures (e.g. family and household relationships)
- Population and housing characteristics (e.g. health, employment, dwellings)

6. The decennial Census provides a comprehensive population count at very fine levels of geography, together with information on population structures and characteristics.

7. In the years in between the Census the ONS Centre for Demography (ONSCD) produces annual mid-year estimates of the population through the established cohort component

methodology, using a combination of survey data and administrative data sources. Appendix A provides more detail on the main population statistics outputs currently produced.

8. Traditionally, in most countries a census has been the key statistical source to provide a population count. Its advantages are well rehearsed: at a given point in time and with regular frequency (usually every ten years) it provides a rich and comprehensive picture of the whole population in a country. However, given recent trends in the population as discussed in section 2.1, it is clear the increased mobility of the population has led to challenges to the way international migration flows are measured.

3. NEW DEVELOPMENTS: IMPROVING MIGRATION STATISTICS AND THE 2011 CENSUS

9. To address some of the challenges in relation to the measurement of migration in the UK the Office for National Statistics (ONS) established an Interdepartmental Task Force on Migration Statistics with other government departments in May 2006. The objective of the task force was to recommend timely improvements that could be made to estimates of migration and migrant populations in the UK, both nationally and at local level.

10. Following the publication of the Task Force recommendations, the Migration Statistics Improvement Programme was set up to take forward the improvements as set out by the review. The Programme is focused on making improvements to the methods and data sources used to estimate the population at national and local levels during the intercensal period (the time between two Censuses). These improvements are needed to minimise the risk of divergence between the rolled-forward, mid-year population estimates and the 2011 Census-based population estimates, and to better understand the differences that remain¹. Although the programme consisted of a wide range of different projects, for the purpose of this paper we will focus on two specific initiatives: improvements to the counts of people entering and leaving the country from the International Passenger Survey and the potential use of administrative data; improvements to counts through the use of administrative data relating to migrant workers; and the development of a new set of migration questions for the 2011 Census

3.1. Counting in and out: surveys and administrative sources

11. There currently is not a single, all-inclusive system in place to measure all movements of population into and out of the UK. Therefore, it is necessary to use a combination of data from different sources that have different characteristics and attributes in order to produce estimates of international migration. None of the data sources used, while offering the best data currently available, are specifically designed to capture information solely on international migration. Three sources of data are used to compile the National Statistics estimates of international migration. They are from the:

¹ Further information can be found on
<http://www.ons.gov.uk/about-statistics/methodology-and-quality/imps/index.html>

- International Passenger Survey (IPS). This is the prime source of migration data providing estimates of both inflows and outflows, but does not cover all migration types.
- Home Office, which provides data on asylum seekers and their dependants.
- Irish Central Statistics Office, which provides estimates of migration of all citizenships between the UK and Irish Republic.

12. Combining data from these three sources, with some adjustments, produces the most inclusive estimate and is referred to as Total International Migration (TIM).

13. Out of the three data sources the International Passenger Survey (IPS) is the most important one. It is a sample survey of people coming through port entry and exit points in the United Kingdom. The survey has been running since 1961 and currently interviews passengers at all the main points of entry to and exit from the UK.

14. The main purpose of the IPS has been to collect expenditure information (to feed into the Travel Account of the Balance of Payments) and information on tourism. Collecting information on migrants began in 1963/64 and was expanded in the 1980s, through the introduction of migration filter shifts which boost the small number of migrant contacts that would otherwise be made.

15. The survey questionnaire covers these three main areas: gathering information on expenditure, tourism and migration, although not all questions are asked of all respondents. For example, on migration filter shifts only detailed questions on migration are asked of respondents who have firstly indicated a positive migration status.

16. It is clear that a sample survey such as the IPS has a number of strengths for migration statistics purposes. One of the key advantages of a survey is that it can cover a wide range of topics and questions that provide useful information on the type and nature of migration in and out of the UK. On the other hand a survey such as the IPS has the disadvantage that because of the relatively low number of migrants within the overall passenger flows it needs to sample a relatively large number of passengers in order to find sufficient numbers of migrants.

17. To address some of these limitations, as part of the Improving Migration Statistics Programme, a review was set up to revise the sample design of the IPS. The review focused on two sets of improvements: (1) the development and implementation of an improved survey design and (2) research into the feasibility to use new administrative data systems to support the production of migration statistics.

3.1.1. Survey design improvements

18. From 2009 a new survey design for the IPS was implemented with a larger, main migration sample and a sub-sample for interviews collecting data for other statistical outputs such as balance of payments and tourism statistics. The new survey was implemented in January 2009 with a revised and larger sample with greater coverage of air and sea ports and new questionnaire content. The project also developed a new data processing system to support the new survey design.

3.1.2. Using administrative data: e-Borders

19. In comparison with other countries the UK statistical system is characterised by a relatively high reliance on sample surveys. However, in the last decade or so there has been an increasing drive to use administrative data for statistical purposes. One of the aims of the Port Survey Review is to look at how administrative data could be used effectively for migration statistics purposes.

20. In particular the Review focused on the statistical use which might be made of the e-Borders system. This is a Home Office Programme intended to deliver a modernised border control system. The programme will require commercial carriers and owner/operators of all vessels scheduled to arrive in or depart the UK to submit all passenger details to the e-Borders systems.

21. Information from these systems could in principle improve the reliability of national level migration estimates, providing data for all people entering and leaving the UK. However, it will not provide information to cover all of the topics and questions that are currently included in the IPS, for example the intended destination within the UK. It is envisaged there will be a continuing requirement for a port survey to augment the data from administrative sources. Therefore, the potential inter-relationship between the two data sources is also being explored in more detail as part of the future work in the Review.

22. As part of the research into the feasibility of using the e-Borders data for statistical counts of migrants a number of issues will need further consideration. In terms of using the administrative data from e-Borders in conjunction with a survey such as the IPS there are a number of survey design components where administrative data could be used, such as for sampling purposes of for weighting and grossing the survey sample to volumes of travellers through UK ports.

23. It is also clear further work needs to take place on what type of statistics could be produced from entry and exit data from an administrative data source such as e-Borders. For example, the system would not provide information on intended length of stay, which would lead to difficulties in estimating resident status for regular travellers who enter and exit the country multiple times within a period of time.

24. From the discussion of the potential use and limitations of administrative data systems such as e-Borders it is clear further work needs to take place to see how these data could be used within an integrated system for the production of migration and population statistics.

3.1.3. Using administrative data: Migrant Worker Scan data²

25. A second data source which has undergone an initial feasibility assessment for the potential to contribute to better migration statistics is the Migrant Worker Scan data (MWS). These data contain information on all overseas nationals who have registered for, and been allocated, a National Insurance Number (NINo). The Department for Work and Pensions (DWP) supplied record level data to ONS on behalf of HM Revenue and Customs (HMRC) to enable the feasibility assessment.

26. The initial feasibility research has shown that ongoing access to specific MWS record level data would provide useful information on the number and characteristics of international migrants

² For further information please see <http://www.ons.gov.uk/about-statistics/methodology-and-quality/imps/updates-reports/historical-updates-reports/updates-reports-09/initial-feasibility-report---october-2009.pdf>

entering the UK and registering for a NINo. Use of these data would also provide a better basis for making an assessment of internal moves of international migrants and increase understanding of the nature and impact of population change.

27. Nevertheless the research has identified a number of issues with these data. For example there are:

- quality issues - including out-of-date addresses, coverage, previous country of origin;
- definitional difficulties - for instance short stay or visitor less than three months, resident more than three months and long stay more than one year;
- methodological differences - such as the use of arrival dates rather than registration dates, previous country of origin rather than nationality.

28. The feasibility assessment has shown that the use of record level data on migrants can improve the quality of our migration statistics. For example, record level data can be used to support a range of bespoke analyses including: broad and specific time frames, combinations of demographic characteristics, specific nationality categories and differing geographies. Additionally, these data provide the ability to estimate internal moves by linking successive MWS extracts and the opportunity to link with other data sources to provide a fuller understanding.

3.2. New migration questions in the 2011 Census

29. As part of the work on improving estimates of migration the Programme also considered the need to think more carefully about population definitions, both in the intercensal period and in the design of the 2011 Census. In the 2011 Census a number of new questions and changes to definitions will be included:

- information on visitors present in the household on Census night;
- citizenship (passports held);
- questions on second residence;
- year and month of entry into the UK (for overseas born);
- intended length of stay in the UK;
- improvements to the “address one year ago” question.

30. The questions in relation to intended length of stay will be used to determine the ‘usual resident’ status of respondents, and will enable outputs to be produced excluding short-term residents who were present on Census day (anyone born outside the UK who has stayed or intends to stay in the UK for a period of three months or more but less than 12 months).

4. LOOKING AHEAD: BEYOND 2011

31. As discussed earlier the UK does not have a register-based system, and uses a census approach to count the population every ten years. In addition, a range of surveys and administrative data are used to update the population count in between censuses at each mid-year point through the population mid-year estimates. However, it is clear the fitness for purpose of this approach is being questioned, and the combined challenges of a changing population, changing user needs, and

changes in data availability point to the need for an open debate with users on their requirements and priorities, and how they can best be met.

32. The previous section explained how a number of initiatives have led to improvements to the statistical system for population statistics in the short to medium term. However, it is clear these initiatives need a stronger framework and a future vision which is more responsive to changes in the population and changing user needs. In meeting these needs for the longer term the UK National Statistician, together with the Registrars General in the devolved administrations, set up the Beyond 2011 Project. This project, led by the Office for National Statistics but supported by the wider Government Statistical Service, aims to assess the feasibility of improving UK population and other core socio-demographic statistics through alternative data sources which could complement or replace existing approaches.

33. Although the work on options for the future explicitly looks at a number of different types of data sources early indications are the system for the production of population and core socio-demographic statistics would need to rely on the integration of a number of different data sources – administrative data, surveys, and / or alternative census designs.

V. DISCUSSION

34. From the description of the current sources for the production of UK population statistics it is clear the estimation of the migration component of population change is currently the most challenging.

35. Although there are a number of specific conditions which, in comparison with some other countries, make it easier to measure in-and out migration across UK borders, it is clear the current survey-based approach is sub-optimal in terms of the need to interview large numbers of passengers in order to find a limited number of migrants. Although the survey approach lends itself to the collection of very rich information it is not ideal in terms of collecting data to high levels of accuracy.

36. On the other hand administrative data systems, which count people in and out, have the advantage of being able to provide large volumes of data with the potential for more accurate estimates. However, it is clear a number of conceptual issues need to be resolved to move from a database for administrative purposes to the possibility of producing statistical counts.

37. In addition, in the wider context of the future strategy for population statistics Beyond 2011 further work will need to take place on the fit between an administrative count of border crossings and a stock count through either a Census or a register/administrative database system. Other countries (especially in Scandinavia) estimate migration based on population registers, but also encounter difficulties with a purely register-based approach. Particularly in relation to estimates out-migration (people leaving the country without de-registering) adjustments need to be made to register counts, based on a number of assumptions and / or other available data on people leaving the country.

38. Finally it is clear there are developments in the definitions of the concept of “migrants” itself which will have consequences for how migration can be measured. For example, the increased

economic importance of ‘short-term’ migrants (staying more than 3 months but less than 12) will mean further work will need to be done to distinguish these ‘economic’ migrants from ‘visitors’. It is clear that although administrative data would provide highly accurate count data these data would not provide information on the reason(s) for entering the UK. It is therefore likely an integrated approach, using survey or other data, would still be needed to complement administrative counts.+

APPENDIX A. Current mid-year population estimates and related statistics

The ONS Centre for Demography produces a number of regular outputs under the headings of population estimates, population projections, internal and international migration.

Population Estimates

- Mid-year population estimates (MYEs) for England and Wales, and (with contributions from the devolved administrations) the UK.
- UK electoral statistics
- Marital status population estimates for England and Wales
- Quarterly population estimates
- Small area population estimates (super output area)
- Population estimates by ethnic group (PEEG)
- Estimates of the very elderly (experimental)
- Estimates of the household population for England and Wales (experimental)

Population Projections

- National population projections for the UK and constituent countries
- England & Wales marital status projections
- Interim life tables for the UK and constituent countries
- Sub-national population projections

Migration Statistics

- International migration estimates (to and from the United Kingdom) and internal migration estimates (within England and Wales and between England, Wales, Scotland, and Northern Ireland)

The diagram below provides a schematic overview of the different data sources feeding into the key population statistics produced by ONSCD.

Population Systems

