

POPULATION AND MIGRATION STATISTICS COMMITTEE (SCOTLAND)

1. Introduction

The purpose of this paper is to give you some more background into our revised SAPE work plan, and to describe the steps which GROS plan to take to produce the 2003 and 2004 datazone SAPEs.

Our current work plan aims to satisfy the requirement to introduce small area populations into our regular outputs, soon after the publication of the mid-year estimates, whilst at the same time building on the work carried out to date to improve the methodology used. In particular we are building on the work carried out through SNS funding by Claire Boag, and a parallel project which is being run by ONS.

2. Background

Much of Claire Boag's work was in developing the apportionment method of SAPE, which uses the Community Health Index (CHI) suitably modified to remove ineligible records (e.g. historical records) and add populations not covered (e.g. Armed Forces). The CHI is used to allocate the mid-year estimates to postcode areas and then aggregate up to the required geography. This work was refined following input from the SAPE working group, and used to publish SAPE for 1999 and 2000.

The publication of the Census 2001, allowed a comparison to be made between the Census results and the apportionment method. It also allowed the cohort component method to be used, where the CHI is used as a source of migration at small areas. This is similar to the method used to produce mid-year estimates at the local authority and health board level.

Following an extensive review of methodologies in conjunction with members of the SAPE working group (made up of potential users and members of local authorities who were experienced in producing SAPE), the cohort component was considered to be the preferred method, because of the extent of the deviation of the apportionment method estimates from the Census base population. Claire's conclusion was that although a number of steps had been taken to adjust the CHI to reflect the population, these steps had introduced an element of bias and their beneficial effect had been negligible.

As a result it was agreed with the SAPE working group that the 2002-based ward estimates, using the cohort component method should be published following some evaluation of the migration component in relation to the Census migration data. On the whole the estimates of migration were similar in most areas, although there were a number of areas where there were marked differences. In the main these were either armed forces areas which were not included in the CHI, and also student areas where the CHI migration appeared to be affected by the patterns of student registration with a GP. The estimates were released on the web with a flag to indicate the areas where we questioned the quality, and we noted that work would be carried out to improve this aspect of the method.

3. ONS Project

ONS carried out an evaluation of all possible methods for producing SAPE, resulting in a thorough investigation of 3 methods, namely;

- cohort component method
- apportionment method
- ratio-change method

Whilst the first 2 methods were investigated by GROS, the ratio-change method was not. This latter method uses the ratio change between 2 years worth of combined administrative datasets to update the previous years estimates. ONS found no strong evidence for a single method, though the Apportionment was the least preferred of the three, they identified a preference for the Ratio Change method. One of the main reasons for this is that it does not suffer with the same difficulties in estimating international migration or reflecting the age distribution of students in student areas. In addition the Ratio Change method best reflects a number of desirable criteria identified by ONS for an estimation model

4. Current Work Plan

Since starting work on SAPEs in June 2004, the existing SAPE system has been converted to produce estimates at the datazone level. It is recognised that the estimates at this lower level may be more inaccurate but it was decided to apply the existing method and examine the stability of the resulting estimates.

So far, we have examined the pattern of imputation across the datazones and are now identifying areas where there are large changes in estimates by comparing the estimates to a variety of administrative data sources including;

- Raw CHI Currently Registered Population
- School Census Datazone Estimates
- Assessor Dwelling Counts 2003 – Datazone
- Electoral Register 2003 – Ward
- Student Funding Data - Datazone

We hope to be able to report the outcome of this quality assurance process by December 2004.

5. Development of Administrative Sources

We plan to compare the performance of the ratio-change method as the next step in the SAPE project, but note that some potential users would appreciate some more evaluation of the use of the administrative sources in relation to the production of population estimates.

Ganka Mueller has responsibility for developing Census Alternatives and is developing a programme of work which will consider the quality of a range of administrative sources which would also be useful in the production of a range of population estimates, from small area estimates produced using the ratio-change method to the mid year estimates.

The evaluation would consider a number of issues including;

- Coverage
- Timeliness
- Coverage by subgroup
- Use to supplement special populations
- Potential use for monitoring change in populations

This will initially concentrate on the administrative sources which have the potential to provide small area statistics, and will include an update of the work Claire Boag did on the CHI when considering the apportionment method. This is particularly relevant, given the current interest in the use of the NHSCR as the basis for a population register.

In the short term, this will contribute to the quality assurance of the MYE, and therefore of the SAPE, but it will also feed into the decision about the best sources to use in the ratio change method which is to be adopted for the production of the 2004 SAPE.

6. Future Work Plan

The proposed timetable for the production of the 2003 and 2004 datazone SAPEs is given below.

Objective	Estimated Start Date	Estimated Completion Date
Produce 2002 & 2003 Datazone Level SAPE using the Cohort Component method. Supply totals to Alan Fleming for use in settlements work.	October 2004	Completed
Carry out a detailed investigation of the migration data post imputation to determine the impact of imputation.	November 2004	Completed
Carry out a thorough quality assurance of the datazone SAPE against available administrative data sources.	Mid November 2004	Mid December 2004
Present methodology and findings of quality review to working group and receive feedback.	Mid December 2004	Mid January 2005
Carry out any adjustments to 2003 datazone SAPE based on findings from external data sources.	Mid January 2005	Mid March 2005
Quality assure adjusted 2003 datazone SAPE	Mid March 2005	Mid April 2005
Establish system for producing 2004 ratio- change SAPE	January 2005	May 2005

Objective	Estimated Start Date	Estimated Completion Date
Run user workshop	N/A	May 2005
Produce 2004 ratio-change SAPE	Mid May 2005	July 2005
Quality assure against the 2001, 2002 and 2003 datazone SAPE to ensure consistency	August 2005	September 2005

Our initial plan was to publish the 2003 based SAPE in May 2005 and 2004 based SAPE in October 2005. However, this will be reviewed by the SAPE working group with a view to balancing the need for early access with carrying out quality assurance.

7. Future Demands

The following related work is also being considered.

1. Research into producing backdated SAPEs at a datazone level (Possibly back to 1990)
2. Produce postcode level SAPEs for 2003 onwards.

Gillian Miller

Demography & Dissemination branch

GROS

22 November 2004