EXTENDED ABSTRACT

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An assessment of the feasibility of using administrative data in producing mid-year population estimates for South Africa

Abstract

The production of mid-year population estimates is an important undertaking which informs various stakeholders in policy formation and decision making. For instance, national governments use mid-year estimates to allocate seats in parliament to various constituents and public health sectors use them to monitor and improve service delivery. Mid-year population estimates undoubtedly serve very important purposes that affect lives of many people. As such, national statistical offices in various countries are given the mandate to produce annual mid-year population estimates.

Statistics South Africa (Stats SA) assume the function of producing and publishing mid-year estimates of the population in South Africa. Stats SA produce their mid-year estimates using DemProj, population projection software which is part of the SPECTRUM suite of policy models developed by the Futures Institute. However, Stats SA do not publish full details of their adaptation of Demproj when producing their mid-year estimates as they regard this as proprietary. Concerns have been raised about the accuracy of their mid-year estimates in terms of age distribution, particularly for ages below 40 last birthday in 2011 (e.g. Dorrington, 2013). As such, this research critically analyses the method used by Stats SA to produce mid-year estimates and assesses the feasibility of using administrative data to produce mid-year estimates for South Africa.

In May 2013, Statistics South Africa (Stats SA) published the official mid-year estimates of the population of South Africa, which were the first since the 2011 census. Concerns were expressed regarding inconsistency of the population estimates with the 2011 census age distribution (e.g. Dorrington, 2013). Consistency of a series of post-censal population estimates with census population estimates, in terms of the age distribution, is particularly important for general reasons. Inaccuracy of estimated numbers in specific age groups, for example, affects national planning for purposes such as child immunisation coverage and provision of classrooms and teachers (Dorrington, 2013). It also affects the estimation of important age-specific demographic indicators

such as infant mortality, and other important national statistics which could have far reaching and adverse implications.

In order to check for consistency with other series of population estimates in terms of age and sex distribution, and other demographic features, it is important to compare their mid-year estimates with the population estimates from census series. When Stats SA's 2011 mid-year estimates are compared with the population estimates derived from the 2011 census, inaccuracies are found particularly in terms of the age distribution for ages below 40 last birthday in 2011. Such inaccuracies may mislead users of the mid-year estimates and can have negative implications when used to inform policy making and decision making. Thus, it is important to critically analyse the method used by Stats SA to produce mid-year estimates in order to shed light on some of the causes of the inaccuracies and inconsistencies in their estimates.

To address the consistency issues faced by Stats SA, the following approach is used in an attempt to come up with an alternative to the method currently being used by Stats SA. The base population is adapted from the 2001 census population. Birth and death registration data are used in a cohort component approach to produce alternative mid-year estimates for South Africa for the years 2002-2011. Prior to using these data, they are adjusted for incompleteness. Levels of completeness of birth and death registration are estimated by extrapolating earlier estimates of completeness from various researchers. The mid-year estimates obtained are compared with those published by Stats SA in order to assess the relative quality of the two series of mid-year estimates. The mid-year estimates for 2011 are also compared with the mid-year population estimated from the 2011 census. These comparisons help identify the mismatches to the census and their possible causes and as such, these may lead to improved population estimates in the future, and a viable alternative method to that currently being used by Stats SA.

References

Dorrington, R. E. (2013). Alternative South African mid-year estimates, 2013. Centre for Actuarial Research Monograph 13, University of Cape Town.