

Using Election Registration Data to measure Migration Trends in South Africa

Introduction – the need for additional data

Demography is not static, and population figures, distribution and composition changes over time and space (Waugh , 2000). This is especially prevalent in developing countries including South Africa where urbanisation through migration is still a strong current reality affecting the South African settlement landscape (Kok & Collinson , 2006). Over time, migration in addition to population growth or decline, changes the demographic composition of towns, cities and regions, which in turn requires adjustments to service and infrastructure provision. The development of suitable policy and planning responses requires reliable, comparable and timely information which in itself presents a problem as migration-specific surveys at national scale do not occur frequently in South Africa. The data collected nationally is not always sufficient when migration is analysed. The South African National Development Plan even indicated that data on migration into and within South Africa is poorly collected, weakly analysed and often deceptive. The plan noted that municipalities were often unable to respond effectively because they did not have sufficient recent data or the necessary skills to make sense of the data they have (Steyn , 2013). Efforts to incorporate migration trends and data into long term policy will require better data and better data integration into planning processes (Landau & Segatti , 2009). In order to conduct comparisons and trend analysis it is crucial to define migration clearly. For the purpose of the work conducted and described in this brief, migration is described as *the process that results in an individual or household relocating to establish or re-establish residence in a different spatial area (defined here as a voting district) than prior residence.*

The South African Case

Statistics South Africa, the main source for migration data, undertakes a national census only once every ten years. This is a long period of time when considering that the time period for local municipal planning is much shorter – Integrated Development Plans (IDP) for example are 5-year plans. During 2008, the Department of Science and Technology (DST) commissioned the Council for Scientific and Industrial Research (CSIR) and the Human Sciences Research Council (HSRC) to develop an information- and modelling platform, now known as the *Spatial and Temporal Evidence for Planning in South Africa* platform ([STEPSA](http://STEPSA.org)), to support integrated planning, development and service delivery in South Africa (STEPSA.org , 2013). Engagements with a number of municipalities indicated the need for more regular demographic data given the extent of settlement change observed - migration information was identified by these municipalities as a key data layer. After an initial search for suitable alternative migration data sources it was decided to approach the Independent Electoral Commission (IEC) to explore voter registration data as an alternative source for migration data.



Data from the Independent Electoral Commission (IEC)

The Independent Electoral Commission (IEC) agreed to provide the voter register in an anonymised format. Data sets containing voter registration and behaviour data for the elections between 1999 and 2011 were provided along with the number of registered voters in every voting district for each of the six elections. For the 2011 national election 23,655,046 individual voters registered, which makes it a good dataset considering that the 2011 statistical release for South Africa was 51 770 560 (Statistics South Africa , 2012). One of the obvious limitations of using voter registration data is that it only represents registered voters. It excludes those that are not eligible to vote such as foreigners and children (under 18 years of age). It also excludes those who simply do not vote and do not bother to register. The IEC migration data does not represent the entire population and therefore does not replace other migration data such as those recorded through the censuses.

Application of results

Although the IEC data in non-spatial form also contributes significantly to migration analysis, it is especially valuable to present the information spatially. The benefit of visual displays is that it easily and quickly informs. A key question when considering the use of the IEC data is to what extent it correlates with information drawn from the 2011 census. Should the trends be significantly different it would raise doubt on the value of the information. During the initial processing of the latest (2011) IEC data it was decided to compare the IEC data to the census information. At the time of conducting the comparison, only inter-provincial migration results had been released by Statistics SA. The census data was processed to indicate the number of individuals that relocated between provinces throughout the period 2001 and 2011. Similarly, the IEC data covered data extracted during 2000 and 2011. Figure 1 illustrates the trends between the census and the IEC inter-provincial migration information. The two datasets cannot be compared based on numbers as the IEC excludes everybody that is not registered during the periods of analysis. It is however possible to compare the broad trends (illustrated in the graphs) to determine if the patterns of movement do align. It can be observed that there is a strong similarity in trends which serves to confirm that the IEC data trends are aligned to the Census data.

Inter-provincial migration

The data was also extracted at a more aggregate level – namely for province and local municipality. Using *the flow data model*, flow lines were created indicating all flows. Using an origin-destination matrix generated from the flow data flow lines can be created to illustrate the migration trends. *Figure 2* illustrates the result – inter-municipal migration flows for South Africa for two periods 2000 and 2011.

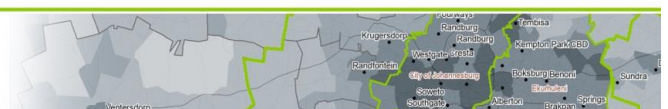


Figure 1: Comparison of Census and IEC data for inter-provincial flows.

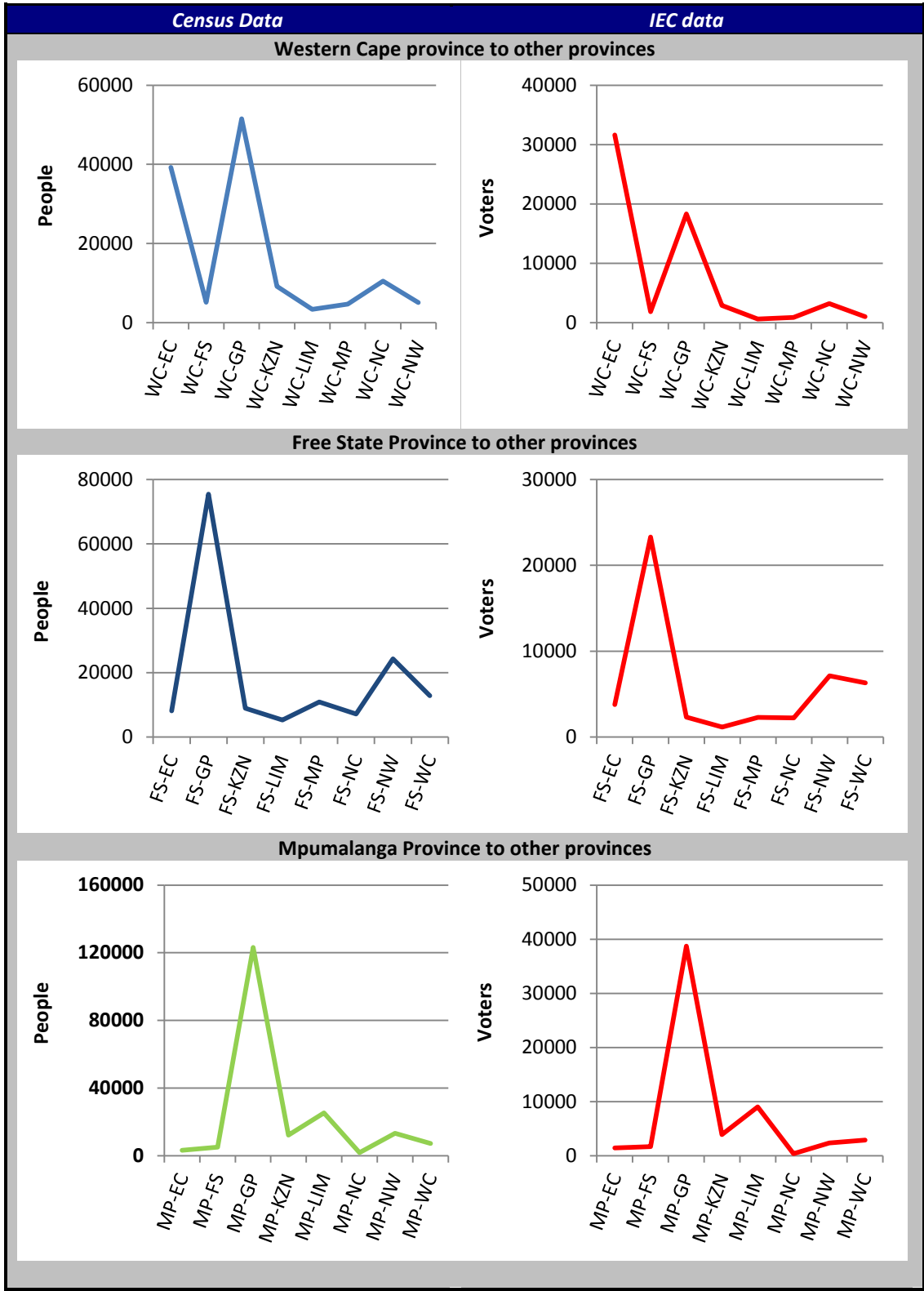


Figure 1: Comparison of interprovincial flows – a few examples.

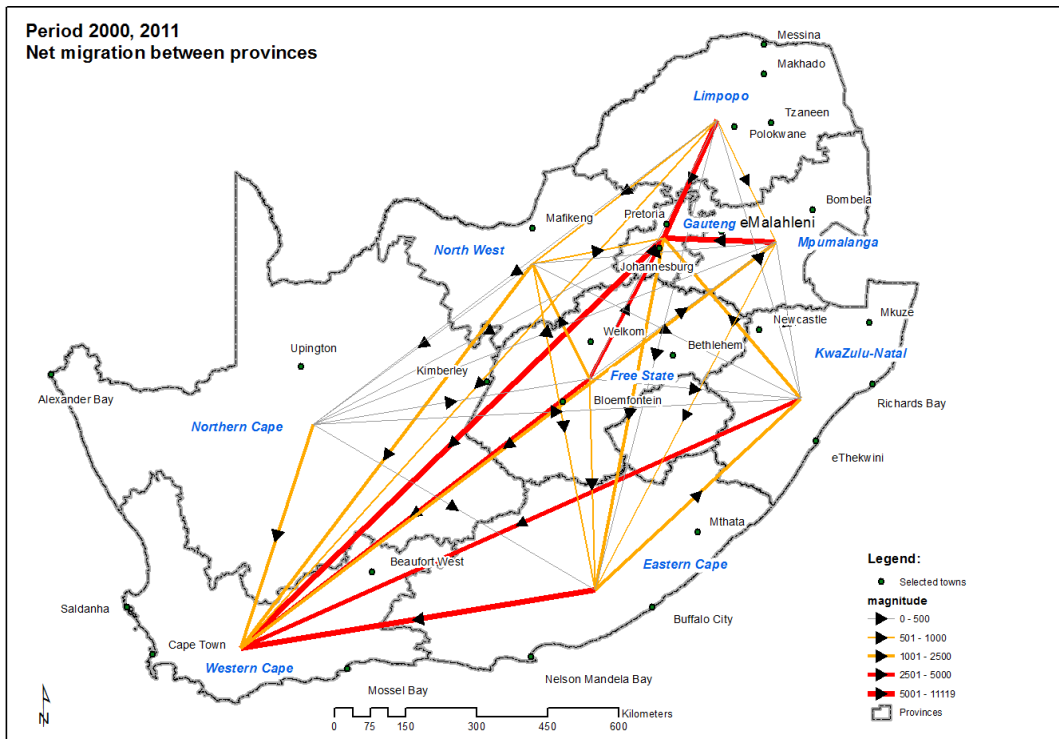


Figure 2: Net inter-provincial flows, 2000 and 2011.

Using the IEC data the net flows of movement between provinces can be calculated – again the objective is not to list absolute numbers, but to rather identify major migration trends as this in itself is useful to understanding trends in time. Flows between the same origin / destination is cancelled out leaving only the dominant movement trends. From the mapping it can be observed that there are several net positive migration flows occurring, namely:

- From the Eastern Cape to the Western Cape
- From Gauteng to the Western Cape
- From Limpopo and Mpumalanga to Gauteng
- From the Free State to both Gauteng and the Western Cape

When considering only net in- or outflow the IEC information indicates that the Western Cape and Gauteng (and to a lesser extent the North-West Province) are net receivers of migrants whilst all the other provinces are net providers of migrants (See figure 3). It must however be pointed out that this *only indicated inter-provincial movements* – local inter-voting districts and inter-municipal movements are not taken into account. 2001 and 2011 is also a long interval and interim movements are not reflected here.

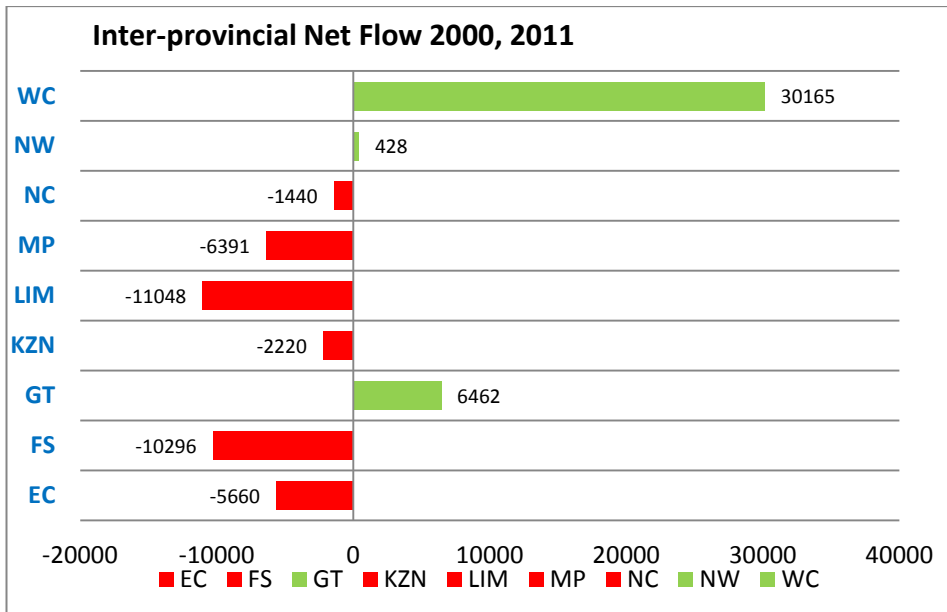


Figure 3: Inter-provincial net flows 2000 and 2011.

Inter-municipal migration trends

To conduct inter-municipal migration analysis the same information was extracted at municipal level. Similarly, origin and destination matrices were constructed and flow lines generated to indicate only major net migration trends. Summaries were also produced to indicate if municipalities were net-providers or -receivers of migrants. Figure 4 illustrated the results – grey and blue areas indicate municipalities where a net outflow occurred whilst the orange and red municipalities experienced a net gain through migration. The major movements indicated by flow lines generated indicate the following:

- There was significant movement from several municipalities in the Eastern Cape to the Western Cape.
- Migration from several municipalities in the Limpopo province occurred to Gauteng
- Migration also occurred between the metros especially from eThekweni to Gauteng and from Gauteng to Cape Town
- Also observable is adjustments in distressed districts where migration occurred from more remote areas to municipalities with larger towns (such as Kuruman and Mbombela).

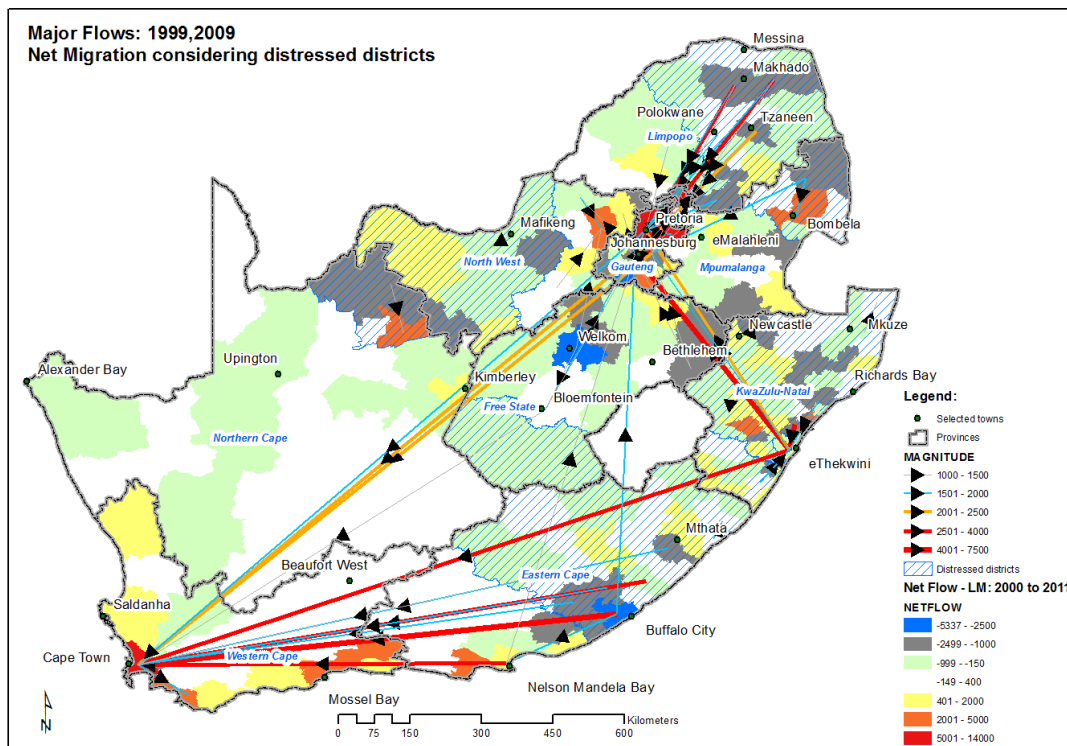


Figure 4: Net migration - Inter local municipal.

Two trends can be observed in the areas currently described as distressed districts¹; first there appears to be adjustments from more remote parts within these districts to larger service centres: examples Kuruman in North West and Mbombela in Mpumalanga province. The second trend is movement from these distressed districts to metropolitan areas of Gauteng, Ethekewini and Cape Town. Significant movements can be observed from Vhembe to Gauteng, from OR Tambo and Amatole districts to Cape Town. When considering only net gain or loss due to migration several municipalities stand out; the City of Tshwane and Cape Town have experienced net gains while Emfuleni and Matjhabeng has experienced a net loss when considering the two time periods. *Naturally it is important to note that movements within shorter time periods have to be considered as well – the results of which is not reflected in this example.*

Conclusions and future research

Although South Africa is in a better situation than many other developing countries, it still requires more frequent and finer scale information especially for local planning and policy development. Migration is one of the key issues identified by users (local and district municipalities). Given the low frequency of migration data collected nationally the IEC's voting district-based data holds more potential as an alternative migration dataset. Comparisons of IEC data with other migration information has shown that it is a viable and complementary data source. The IEC data does have limitations – largely due to human behaviour (such as not reregistering when moving to a new voting district), however the effects of this potential problem can for the most part be overcome by the aggregation of data and by combining the analysis with other socio-demographic information. It was shown above that it is indeed possible to use the IEC data to determine migration trends. In applying the data to the issue of the former

¹ At the time of writing this note 23 districts were identified as priority rural districts due to the large number of disadvantaged and poor communities within these areas.

homeland territories the spatialised results gave a clear indication that the major migration streams indicated a move to the larger metropolitan centres, and regional centres such as Cape Town, Ekurhuleni, Johannesburg and Tshwane. Future analysis will include gender and age category migration trends. The IEC migration data will in future be used more intensively to understand migration behaviour. This in turn will hopefully positively impact on national, regional and local planning and policy making.

References:

KOK, P. and COLLINSON, M., 2006. *Migration and urbanization in South Africa*. 03-04-02. Pretoria: Statistics South Africa.

LANDAU, L.B. and SEGATTI, A., 2009. *Human Development Impacts of Migration: South Africa case study*. New York: United Nations Development Programme.

STATISTICS SOUTH AFRICA, 2012. *Statistical release (Revised) Census 2011*. P0301.4. Pretoria: Statistics South Africa.

STEPSA.ORG, .15 Febr 2013. about - stepsa.org [Homepage of CSIR], [Online]. Available: <http://stepsa.org> [April 11, 2013].

STEYN, L., 2013. Measuring the waves of migration. *Mail and Guardian, Business*, pp. [Online]. Available: <http://mg.co.za/article/2013-01-11-measuring-the-waves-of-migration>. [January 11, 2013].

WAUGH, D., 2000. *Geography, an integrated approach*. Second edn. Cheltenham, United Kingdom: Nelson Thornes.

For more information on this policy note, please contact:*

Johan Maritz
CSIR Built Environment
jmaritz@csir.co.za
Tel: 012 841 2928

*Any opinions stated in this Policy Note are those of the author(s) and do not necessarily reflect the policies or opinions of DST or the CSIR. StepSA Policy Notes are intended to provide reflexive policy appraisal and synthesis of cutting edge thinking in order to inform and strengthen the delivery of government policies and programmes.