ESTIMATES OF INTER-PROVINCIAL MIGRATION IN SOUTH AFRICA, 1996-2011

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ABSTRACT

Migration is an important component of population change in South Africa. Unfortunately, like in most countries, reliable data on migration is not readily available. The aim of this study is to estimate net internal migration for provinces in South Africa using Census Survival Ratio Method (CSRM). This method is underutilized in demographic research in the country and is based on the reported age-sex statistics collected in the census and demographic surveys. The method compares the projected population for each age and sex based on the first censuses and the reported population at the second census. In absence of errors in the age statistics the difference between the projected and enumerated populations could be attributed to net migration. The results indicate that during the intercensal period 1996-2001, Gauteng and Western Cape were the major receiving provinces whereas the other remaining provinces were the sending provinces in the country. The results are consistent with findings based on other estimation procedures and correspond to nature of social and economic development in the country. One policy implication of the study is that efforts should continue being made to make the sending provinces more attractive so as to reduce the inflow of people to the crowded and more affluent provinces of Gauteng and Western Cape.

Keywords: migration, census survival ratio, population growth rate, in-migration, out-migration, South Africa**.**

INTRODUCTION

Migration can be defined as a form of mobility/movement between two clearly defined geographic units that involves permanent change of usual residence Kpedekpo, 1976). Migration can either involve the crossing of international boundaries (international migration) or within the borders of the same country (internal migration). Both types of migration have been substantial in South Africa and as such they have generated some interesting research discussions (Kok et. al, 2003; Mears, 2004; Kalule-Sabiti and Kahimbaara, 1996; Kalule-Sabiti, Kahimbaara and Chimere-Dan, 2001; Roux, 2001; Naidoo, Leibbrandt & Dorrington 2008). This study focuses on the movement between provinces in South Africa. The movement of people in space is a phenomenon in which distance of moves may vary from a few meters to many kilometers, and in which the duration of stay at destination may vary from a few hours to many years. A considerable part of the movements is associated with carrying on the activities of daily life – commuting to and from place of work, shopping, visiting, etc. These types of activities are of interest to certain users; they are, however, to be distinguished from the type of mobility that involves a sustained or permanent sojourn in the place of destination. It is the latter type of mobility that is envisaged by the concept of migration. The essential character of migration is that it involves a change in place of usual residence.

Migration is one of the three basic factors affecting change in the population of any given area, the other two factors being births and deaths. Available data indicate that population growth had been uneven in the various provinces of the country and that migration is partly responsible for this state of affairs. Migration occurs more or less continually over

time. In order to study its incidence, data need to be compiled with reference to specified period of time. In this paper our interest is to examine net internal migration patterns between the intercensal periods 1996 and 2001, 2001 and 2006 and 2006 and 2011. In other words the paper will focus on the inter-provincial migration patterns during the post apartheid era.

RESEARCH METHODOLOGY

The study will make use of the 1996, 2001 and 2011 South African Population Censuses (Statistics South Africa, 1999, 2003, 2008, 2012). The 1996 Census was the first census to be conducted in democratic South Africa and for the first time in the country's history enumerated people of all population groups. In all previous censuses the majority Africans who constitute nearly 75% of the national population were only estimated (Khalfani et al., 2005). In addition, the 1996 census provided the benchmark data for future development programmes of the first post apartheid government.

Compelled by the need to collect social and economic data needed for development planning and, in line with the practice in most developed countries, immediately after the first democratic elections, South Africa decided to conduct censuses every five years (Statistics South Africa, 1999). Given the high costs associated with population censuses, quinquenneial censuses were abandoned in favor of decennial ones, as is the case in most developing countries. The third census was conducted in October 2011 (Statistics South Africa, 2012). However, in order to ensure continued availability of demographic data on regular basis a community survey was conducted in 2007:

> *When cabinet took a decision to move away from the 5-year to 10-year censuses, that created a gap in information or data between Census 2001 and the next Census scheduled to be carried out in 2011. A decision was therefore taken to carry out the Community Survey in 2007.* (Statistics South Africa, 2008, p. 1)

The 2007 Community Survey had three main objectives: to provide data at lower geographical levels than existing household surveys; to build human, management and logistical capacities for Census 2011; and to provide inputs into the preparation of the mid-year population projections (Statistics South Africa, 2008, p. 1)

RESEARCH METHODOLOGY

In terms of methods of analysis, the study will employ the Census Survival Ratio Method (CSRM). The basic information required is the number of persons classified by age and sex as enumerated in each province during the censuses and demographic survey and a set of survival ratios. The survival ratios can either be applied to the population of the 1996 Census in order to derive an estimate of the number of persons expected to survive at the 2001 Census (Forward method) or be applied to the population of the 2001 Census in order to derive an estimate of the number of persons expected to have been alive at the 1996 Census (Backward method). The difference between the enumerated population at the 2001 Census and the expected population gives an estimate of net internal migration for each province of the country. Algebraically this is expressed as

$M_{x+t} = {}_nP^t_x - {}_nS_x \cdot {}_nP^0_x$ (*Where x is the age group, t is the interval between censuses, M_{x+t} is the estimate of net migration in age group x+t, ${}_nS_x$ is the survival ratio, ${}_nP^0_x$ is the population aged x at the first census and ${}_nP^t_x$ is the population aged x+t at the second census*)

The method described above is what is known as Forward Survival Ratio Method. It is also possible to apply the method in reverse by estimating the number of people who were alive five years earlier. This is expressed as follows:

$$M_{x+t} = \frac{{}_nP^t_x - {}_nP^0_x}{nS_x}$$

A description of the method is given by (Shryock and Siegel, 1976; United Nations, 1970; Arriaga, Johnson and Jamison, 1994). The continued applicability and relevance of the method has been explained by different authors (Sivamurthy, 1969; Sly, 1972, Bhagat, 2005; Bilsborrow, 2005; Bogue, Hinze and White, 1993).

There are two types of survival ratios that we can use: census survival ratios and life table survival ratios. The former are calculated from the reported census statistics whereas the latter are derived from the appropriate life tables for the country. Although it is easy to have census survival ratios the data upon which these are calculated are subject to various errors including age misreporting and omission rendering them not reliable. In most developing countries it is difficult to obtain reliable life tables because of absence of requisite data. In the case of South Africa, Statistics South Africa (2002) published life tables for the country and its provinces based on 1996 census data. On assumption that these were applicable over the period under review the 1996 South African life tables were used in this study.

The last two data sources were not conducted on exactly the same date of each year. The 2001 census was conducted on 10th October 2001 while the 2007 Community Survey was conducted in mid February 2007. Thus the community survey took place 5 years and 124 days after the 2001 census. Therefore, a little adjustment is required so that the population of any age cohort is exactly five years older in the community survey while the number of people in the cohort is reduced by death and migration. Hence to make the population of all cohorts exactly five years apart from 2001 census to 2007 survey, the total population in 2007 was projected backwards to October 10, 2006 using the exponential formulae. That is

$P_t = P_0e^{rn}$ (*Where P_t is population at time t, P_0 is population at time 0, r is the growth rate between 0 and t and n is the number of years between 0 and t.*)

This was done separately for males and females employing the observed population growth rates of 1.7% per annum and 1.3% per annum respectively.

Thus the male and female populations by age in October 2006 are obtained by applying the percentage distribution observed in 2007 community survey to the total population estimated in 2006 assuming that the proportionate age distribution of males and females remained unchanged between 2006 and 2007.

So far, most of the studies that have examined internal migration patterns in South Africa have relied on direct questions bearing on migration, namely that based on usual residence at a given prior date (Kok, O'donovan, Bouare and Van Zyl 2003, Roux 2001). On the contrary this study makes use of indirect estimation procedure based on the reported age-sex structure of the population of the population. This is the case not because the latter are deemed superior but to gauge the applicability and relevance of the indirect methods using South African population data. Evaluation of age and sex data done elsewhere showed that the

data in five year age groups are fairly acceptable (Palamuleni 2008, 2015, Simelane 2002). Thus, no attempt has been made in this study to correct the reported ages.

One problem of this procedure is that the method does not estimate the net migration of the children born during the intercensal period. To circumvent this problem it is usually assumed that young children migrate with their mothers. To obtain the estimated net migrants at younger ages, use was made of the child woman ratios based on the second count. Two types of child woman ratios based respectively on children aged 0-4 and 5-9 corresponding to women in the reproductive ages 15-49 and 20-54 are calculated. In other words, migration estimates for age groups 0-4 and 5-9 were calculated based on CWRs and net migrant women as follows:

$$_5M_{i,0} = (1/4) . CWR_{0-4} . _{30}M^f_{i,15}$$ (*Where $_5M_{i,0}$ is the net migration for the population aged between 0 and 5, CWR_{0-4} is the child woman ratio calculated based on children aged 0-4 and women aged 15-49 and $_{30}M^f_{i,15}$ is the net migration for women aged 15-49*)

Initially, estimates of net migration for age group 5-9 were calculated based on the survival ratios. However the results were found to be inconsistent with the estimates of adult migration patterns. For instance, in some provinces it was found that there was net out-migration for the adult female population aged 15-54 but there was a net in-migration for children aged 5-9. Under normal circumstances, it is expected that young children move with their parents as such circumstances as described in the preceding sentence should not arise. This could arise from age misreporting. To circumvent this problem estimates of net migration for age group 5-9 were estimated using the following equation:

$$_5M_{i,5} = (3/4) . CWR_{5-9} . _{30}M^f_{i,20}$$ (*Where $_5M_{i,5}$ is the net migration for the population aged between 5 and 10, CWR_{5-9} is the child woman ratio calculated based on children aged 5-9 and women aged 20-54 and $_{30}M^f_{i,20}$ is the net migration for women aged 20-53*)

The main drawback of using the survival ratio method is built-in assumptions presented in the preceding paragraph. The first assumption is that the population is affected only by births and deaths and not by external migration. This may not be the case with South Africa as available data indicates that South Africa is experiencing an influx of people from all over the world. The second assumption is that the specific mortality rates are the same for each area (province, district, municipality) as for the country as a whole. The third assumption is that the ratio of the degree of "completeness" of enumeration in any age-sex group in each aerial unit (i.e., the proportion that any age group bears to the true population) to that of the nation is the same for the same cohort in both censuses. Accuracy of the estimates of net migration will therefore be affected by the extent to which these assumptions are met. Lastly, when we use the child woman ratios to estimate child migration we also make the assumption that fertility as measured by child woman ratio is same for all areas understudy.

RESEARCH FINDING

Table 1 presents the population of South Africa by age and sex as enumerated in the 1996 and 2001 population censuses and 2007 community survey and the estimated population of 2006. As can be seen from the table the reported age distributions in 1996, 2001 and 2007 seem to be fairly accurate, except for minor irregularities in age reporting, particularly for age groups 0-4 and 5-9. Theoretically, population with an advancing age group should decrease. But the age

groups mentioned above show an increase in population. This may be due to age misreporting or over enumeration.

It should be noted that this discrepancy is not peculiar to South Africa but has also been observed in age-sex distributions from such diverse countries as Tanzania, Pakistan and Philippines (Perveen 1993).

It is apparent that there are some irregularities in both 1996 and 2001 censuses and 2007 community survey. However, it is very difficult to isolate the nature and extent of the errors and irregularities contained in the above-mentioned data sources. Therefore, it was decided not to make any artificial adjustments to smooth our data for making migration estimates hoping that the nature of errors in each age and sex category in both censuses will be similar and therefore, some error will cancel out in the process of migration estimation. This is also to avoid the possibility of introducing greater errors by making unwanted corrections or artificial adjustments on the data.

Table 1: Population of South Africa by Age and Sex, 1996, 2001, 2006 and 2007

Age groups	1996		2001		2007		2006	
	Male	Female	Male	Female	Male	Female	Male	Female
0 – 4	2246131	2251775	2223730	2226085	2503034	2482143	2481628	2454575
5 – 9	2364480	2361501	2425803	2427748	2564273	2552538	2542343	2524188
10 – 14	2339348	2371797	2518957	2542961	2456500	2490499	2435492	2462838
15 – 19	2077377	2154535	2453079	2528643	2560000	2533139	2538107	2505005
20 – 24	1943328	2087722	2099293	2195230	2371765	2420042	2351481	2393164
25 – 29	1685098	1812885	1899124	2035812	2042481	2022313	2025013	1999852
30 – 34	1482889	1628871	1594488	1746413	1884869	1853620	1868749	1833033
35 – 39	1301981	1384242	1441506	1630263	1553066	1664562	1539784	1646075
40 – 44	1044254	1120527	1233633	1385833	1310880	1524419	1299669	1507488
45 – 49	824596	873452	967604	1119777	1109870	1298415	1100378	1283994
50 – 54	608433	675958	769498	868520	891688	1075700	884062	1063753
55 – 59	490084	592871	552323	652943	711156	854999	705074	845503
60 – 64	356718	544557	444508	620783	494017	663666	489792	656295
65 – 69	308043	460005	304764	483163	395078	567122	391699	560823
70 – 74	197704	290284	232547	398922	241880	423211	239811	418511
75 – 79	143727	238241	136435	231101	163117	316969	161722	313449
80 – 84	62894	118148	90835	180110	87682	176112	86932	174156
85+	43805	95058	45908	111425	70707	170530	70102	168636
Total	19477085	20967372	21388127	23274307	23341356	24919469	23211841	24811338

Source: Calculated by the Author

Calculation of the survival Ratio

To obtain CSR for this study, age and sex data from the 1996, 2001 and 2011 censuses and the estimated population for 2006 were utilized. Using the data in table 1, five-year CSRs for each age group are calculated and the results are presented in Table 2. An example of the method used to calculate census survival ratio is:

$$\frac{male\ populaation\ in\ age\ group\ \ 5-9\ in\ 2007}{male\ population\ in\ age\ group\ 0-4\ \ in\ 2001}$$

This is the forward survival ratio for South African males aged 0-4 years in 2001 and 5-9 years in 2006. The numerator is the population at a given census and the denominator is the population five years younger at the time of the previous enumeration.

Table 2: Census Survival ratios for South Africa 1996-2001, 2001-2006 and 2006-2011

	1996-01		2001-06		2006-11	
	Male	Female	Male	Female	Male	Female
$0-4$	1.0800	1.0781	1.1474	1.1409	0.9868	0.9787
$5-9$	1.0653	1.0768	1.0076	1.0207	0.9311	0.8945
$10-14$	1.0486	1.0661	1.0112	0.9911	1.0359	1.0204
$15-19$	1.0106	1.0189	0.9620	0.9523	1.0720	1.0733
$20-24$	0.9773	0.9751	0.9681	0.9166	1.0919	1.0550
$25-29$	0.9462	0.9633	0.9875	0.9059	1.0153	0.9997
$30-34$	0.9721	1.0009	0.9691	0.9484	0.9236	0.9624
$35-39$	0.9475	1.0011	0.9048	0.9304	0.9196	0.9425
$40-44$	0.9266	0.9993	0.8952	0.9322	0.9290	0.9481
$45-49$	0.9332	0.9944	0.9169	0.9558	0.9280	0.9431
$50-54$	0.9078	0.9660	0.9195	0.9795	0.9274	0.9294
$55-59$	0.9070	1.0471	0.8899	1.0113	0.8770	0.9177
$60-64$	0.8544	0.8873	0.8843	0.9090	0.8278	0.8503
$65-69$	0.7549	0.8672	0.7897	0.8715	0.7566	0.8137
$70-74$	0.6901	0.7961	0.6979	0.7906	0.6959	0.7575
$75-79$	0.6320	0.7560	0.6394	0.7582	0.6287	0.7113
$80-84$	0.4303	0.5226	0.5145	0.5820	0.4858	0.5272

Source: Calculated by the Author

It is obvious that the survival ratios for each sex decreased with advancing age except for some variation in certain age groups, which was caused by the misreporting of ages and possible under or over reporting in the census. The survival ratios were above unity in the following age groups: 0-4, 5-9, 10-14, 15-19 for males and 0-4, 5-9, 10-14, 15-19, 30-34, 25-29, 55-59 for females in 1996-2001 and 0-4, 5-9, 10-14 for males and 0-4, 5-9, 55-59 for females in 2001-2007. Theoretically, it is impossible for any age group to have a ratio above unity, but this phenomenon is frequently found in many countries because of inherent defects in the census and survey data.

Estimates of Net Inter-Provincial Migration

The results of the estimates of net intercensal migration for the provinces based on the CSR method are presented in Table 3 and illustrated graphically in figures 1, 2, and 3.
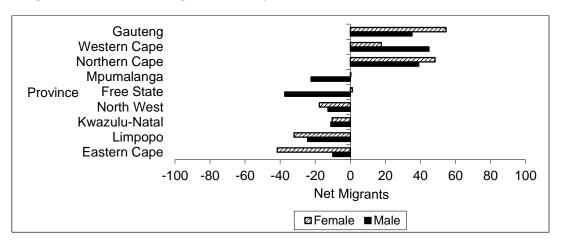
Table 3: Estimated numbers of Migrants and Crude Migration Rates by Provinces in South Africa for 1996-2001, 2001-2006 and 2006-2011

	Number of Migrants								
	1996-01			2001-06			2006-11		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Eastern Cape	-291036	-338376	-629412	-204701	-277044	-481746	-326922	-245592	-572514
Free State	-110365	-64142	-174507	-37689	-50048	-87737	-135599	-121137	-256737
Gauteng	512109	502758	1014868	344742	479095	823836	873580	696716	1570295
Kwazulu-Natal	-50257	-30390	-80648	-4818	-39439	-44257	-541079	-446406	-987485
Limpopo	-192187	-157195	-349382	-238936	-265667	-504603	-182523	-171295	-353817
Mpumalanga	-28326	-8670	-36996	93298	84304	177602	65905	72987	138891
North West	25778	-39528	-13750	-250970	-288817	-539788	11625	14275	25899
Northern Cape	-41847	-46301	-88148	80344	79383	159727	11407	-10235	1171
Western Cape	120496	127973	248468	208552	211707	420259	173595	167453	341049
	Crude Net Migration Rates								
Eastern Cape	-98.9	-98.7	-98.8	-67.7	-80.2	-74.4	-106.1	-71	-87.5
Free State	-85	-46.7	-65.4	-28.6	-35.3	-32	-101.4	-85	-92.9
Gauteng	125	125.8	125.4	71.9	99.9	85.9	156.5	125	140.8
Kwazulu-Natal	-12	-6.4	-9	-1	-7.6	-4.5	-111	-82.9	-96.2
Limpopo	-82.7	-56.6	-68.5	-99.3	-93.2	-96	-74.2	-60.3	-66.7
Mpumalanga	-19.8	-5.7	-12.5	57.4	48.4	52.8	35.7	37.5	36.6
North West	14.9	-22.3	-3.9	-144.3	-165.7	-155	21.7	25.7	23.7
Northern Cape	-102.8	-109	-106	176.1	166.8	171.4	6.7	-6.1	0.3
Western Cape	58.4	58.8	58.6	88	84.5	86.2	64.7	59.7	62.2

Source: Calculated by the Author

Figure 1: Estimated Net Migration rates by sex for each Province, South Africa, 1991-1996
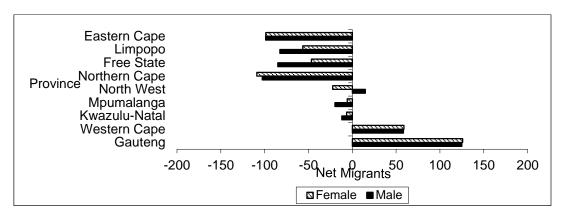

Source: Drawn by the Author

The estimates indicate that during the intercensal period 1996-2001 Gauteng and Western Cape experienced net-in migration rates whereas the remaining provinces experienced

net out migration. Gauteng recorded the largest net gain (1025166), the Western Cape (about 255744). The Eastern Cape (-617152) and the Limpopo Province (-339056) recorded the largest net migration losses during this time.

Figure 2: Estimated Crude Migration Rates for South Africa by Province and Sex based on CSRM, 1996-2001
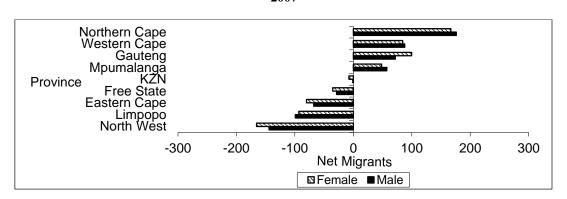

Source: Drawn by the Author

2001-2006 Estimates

During this period, Gauteng, Western Cape, Mpumalanga and Northern Cape experienced net-in migration whereas the remaining provinces (Eastern Cape, Free State, Kwazulu-Natal, Limpopo and North West) experienced net out migration. Gauteng remained the most attractive province for migrants, receiving 878,744 persons slightly more than twice the number of in-migrant in the second placed province of Western Cape which received 400,502 persons. The third in rank in attracting migrants is Mpumalanga (which received 183,632 persons) followed by Northern Cape (which gained 157382 persons). The provinces that experienced the largest net loss of people were North West (602656), Limpopo (513381), Eastern Cape (-421004), Free State (-108316) and Kwazulu-Natal (29869).

Figure 3: Estimated Net Migration Rates for South Africa by Province and Sex based on CSRM, 2001-2007
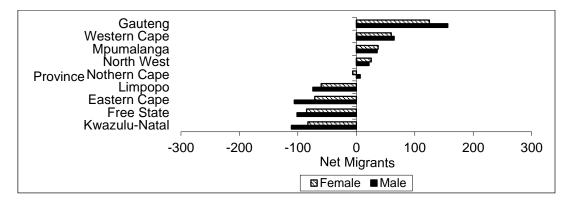

Source: Drawn by the Author

2006-2011 Estimates

Like with the other inter-censal period, there is considerable variation in the volume of net migration estimates for all provinces. Table 5 indicate that during the intercensal period 2006-2011, Gauteng, Western Cape, Mpumalanga, North West and Northern Cape experienced net-in migration whereas the remaining provinces (Eastern Cape, Free State, KwaZulu-Natal and Limpopo) experienced net out migration.

Gauteng remained the most attractive province for migrants, receiving 1,570,295 persons slightly more than five times the number of in-migrant in the second placed province of Western Cape which received 341049 persons. The third in rank in attracting migrants is Mpumalanga (which received 183,632 persons) followed by Northern Cape (which gained 157382 persons). The provinces that experienced the largest net loss of people were North West (602656), Limpopo (513381), Eastern Cape (-421004), Free State (-108316) and KwaZulu-Natal (29869).

Figure 4: **Estimated Net Migration Rates for South Africa by Province and Sex based on CSRM, 2006-2011**

Source: Drawn by the author.

Sex Differentials in net internal migration

Table 3 also indicates differentials in migration flows by sex. In general, for all the provinces, the number of female migrants was larger than that of male migrants. For example, in Western Cape, the number of in-migrants is higher for females than males. In Kwazulu-Natal there is net in-migration for males and net out-migration for females.

This could be attributed to nature and pattern of social and economic development in the country. The provinces of Gauteng, Western Cape and Kwazulu-Natal hosts the major urban centers in the country.

Migration Trends

Migration flows are a good indication of a province's attractiveness. Other things being equal, the choice of residence indicates preferences of location and prevailing social and economic conditions such as a belief in the job market and the housing market. Data in Table 3 also shows trends in net migration rates for each province in South Africa for the intercensal periods 1996-2001, 2001-2006 and 2006-2011. The available data indicate that during the period under review Western Cape and Gauteng are the only provinces that continue to experience net in-migration. Net migration rate for Western Cape has increased from 60 per 1000 in 1996-2001

to 86 per 1000 in 2001-2001. For Gauteng, Net migration rate increased from 44.5 per 1000 in 1991-1996 to 126.7 per 1000 in 1996-2001 and declined to 85.9 per 1000 in 2001-2001. These rates suggest that net in-migration for Gauteng was higher during the period 1996-2001 than 2001-2006. Mpumalanga appears to move from experiencing net out-migration to net in-migration whereas Northern Cape has changed from being a net receiver of in-migrants to a net sender of out-migrants and back to being a net receiver. The remaining provinces (North West, Limpopo, Eastern Cape, Free State and Kwazulu-Natal) continue to experience net out-migration. Net out-migration rates appear to increase for North West and Limpopo and decrease for Eastern Cape, Free State and Kwazulu-Natal.

Comparison with estimates based on other methods

As suggested in the preceding sections, most studies on internal migration in South Africa rely on the direct estimates based on cross tabulation of place of previous residence and place of usual residence (Statistics South Africa, 1998, 2005). As such it was deemed necessary to compare CSRM estimates presented in this paper with those based on the other methods. Table 4 presents migration estimates for provinces in South Africa based on various methods. First, table 4 indicates that estimates based on CSRM are higher than those based on residence in the last five years. In part this could be explained in terms of the incidence of international migration, mortality differentials and age misreporting which varies from one province to another.

Second, in terms of direction, that is whether a province is a sending or receiving area it is encourage to note that there is agreement in most cases. During 1996-2001 intercensal period the two methods give the same direction. However, in 2001-2006 inter censal period differences were observed in North West and Northern Cape. In 2006-2011 intercensal period differences were observed in Northern Cape and Mpumalanga. . In the case of Northern Cape, POL estimates indicate net out migration whereas CSRM estimates suggest net in migration for the province. In the case of Mpumalanga POL estimates indicate net in migration whereas CSRM estimates suggest net out migration for the province.

Overall, the results of net internal migration obtained from CSR and POR methods do give comparable pattern of net migration for the country. Naturally differences are expected as a result of differences in methodology, assumptions, data requirements, and the relevance and applicability of the procedures in the given area. In fact the two methods measure different aspects of migration. In the case of place of birth and place of usual residence the estimated value depict lifetime migration whereas the CSRM estimates portrays a picture between the two censuses.

Table 4: Comparison of migration estimates from different methods, South Africa 1996-2011

Province	1996-2001		2001-2006		2006-2011	
	PORM	CSRM	PORM	CSRM	PORM	CSRM
Western Cape	181,844	255744	951,000	400,502	189,950	31,049
Eastern Cape	-253,373	-617152	-1,478,000	-421,004	-315,526	-572,514
Northern Cape	-6,536	-339056	-195,000	157,382	-14,115	1,171
Free State	-44,721	-169892	-336,000	-108,316	-58,780	-256,737
Kwazulu-Natal	-78,444	-69044	-432,000	-29,869	-107,340	-987,485
North West	-24,095	-7271	169,000	-602,656	30,772	25,899
Gauteng	418,258	1025166	2,501,000	878,744	550,753	1,570,295

| Mpumalanga | -29,977 | -86522 | 49,000 | 183,632 | -21,108 | 138,891 |
| Limpopo | -162,956 | -32976 | -1,229,000 | -513,381 | -254,606 | -353,817 |

Source: compiled by the Author

DISCUSSION

Previous migration studies have utilized data from censuses, surveys and vital registration systems (Kok, et. al, 2003; Roux, 2001; Kalule-Sabiti and Kahimbaara, 1996). For those studies that have used census data they have relied on cross tabulations based on questions on place of birth and place of enumeration, previous residence, nationality (Statistics South Africa, 1998; 1999, 2008; Kalule-Sabiti and Kahimbaara, 1996). Very few studies have utilized the reported age-sex distributions (Potgieter and Calitz 1999). In part the neglect of utilizing age-sex data in migration studies has stemmed from the observation that the reported distortions in the census data (Simelane 2002). However, the quality of the reported age-sex statistics in South Africa is better than in other African countries. Furthermore, the nature and patterns of distortions in age-sex statistics is no different from those found elsewhere. To those researchers who are skeptics this is obvious whereas to the optimistic researcher this is an encouragement to go ahead and apply the method. This is what we have done in this essay.

The study sought to estimate inter-provincial migration for provinces in South Africa using an indirect method that makes use of widely available data of age-sex population distributions. The analysis of net migration estimates presented above confirms the fact that migration is selective by age and sex and that it occurs to areas where more job opportunities and other facilities are available. It also seems that young adult are more mobile. The large number of in-migrants (in Gauteng and Western Cape, for example) and out-migrants in all other provinces obviously affected the social and economic profiles of these areas. These factors are significant since the composition of the labourforce is directly affected by the migrants. It seems that increased volume of in-migration in Gauteng and Western Cape and out-migration in all other provinces should be considered by planners and policy makers, while making policies for development programmes for the country.

It should be mentioned that the findings of this study are beneficial to both researchers and policy makers. First, one task that is usually performed by demographers is to prepare population projections. In order to accomplish this task demographic analyst need to have adequate information on past trends in number of births, deaths and migration. This study provides estimates of net migration for provinces in South Africa. Furthermore, policy makers need to know whether or not areas under their jurisdiction are gaining or losing people. Such information will assist development planners to determine the nature and type of services (such as housing, recreation, security, transport, communication, safety and security and social development) to make available to the public. For instance anticipating future growth in the inflow of people will help estimate the increasing demand for facilities and services.

CONCLUSION

Other things being equal, the reported age-sex distributions of any population summaries the populations past trends in fertility, mortality and migration. As such, if properly analyzed and in absence of errors, age-sex data can provide plausible estimates of the demographic parameters mentioned above. Given that most available migration estimates are based on special questions collected in population censuses and sample surveys there is need to explore

the possibility of obtaining migration estimates from other sources including the reported age-sex distributions. As such, the main purpose of the study was to estimate interprovincial estimates of migration based on age-sex statistics in South Africa. The need to estimate migration using age-sex distributions arose because of the difficulties to obtain migration estimate at sub provincial levels due to complexities involved to cross tabulation relevant questions at this level. As such the finding that reliable estimates of migration can be obtained at provincial level serves as an encouragement to apply the method at sub provincial levels. One major weakness associated with the method utilized in this study is that it only deals with net migration. Using CSRM it is impossible to determine the areas of origin and areas of destination for the migrants. This information is necessary to policy and decision makers.

The assumption of the population figures are not affected by international migration is not realistic for South Africa and its provinces. There is evidence to suggest that most immigrants, refuges and asylum seekers are found in Gauteng and Western Cape. It is possible that the high estimates of net migration observed in age groups 20-50 in these two provinces could be attributed to the impact of external migration.

The results of the intercensal migration estimates presented in this study reveal disparities in migration patterns on the basis of province and gender. These results indicate that Gauteng and Western Cape are the major destination provinces in the country. The observed migration patterns have implications on not only the demographic profiles of the different provinces but also on social and economic development of the country. For instance, the sending provinces have younger populations that are associated with higher dependency ratios than the receiving provinces.

Lastly, it is important to keep in mind that there is a limited amount of data available on internal migration, particularly on internal movements from one district to another district within the same province. As such there is need to examine alternative data sources and methods in our efforts to improve our estimates. The data provided in this paper are preliminary and are intended to contribute to discussion on the data sources and methods that can be used to estimate net migration at sub national levels.

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