PROVISION OF PROJECT MANAGEMENT CONSULTANCY AND TECHNICAL ASSISTANCE SERVICES

The Learning Facility for the Programme to Support Pro-Poor Policy Development

PSPPD II

A Diagnostic Evaluation of Poverty and Relative Deprivation at small area level for the Eastern Cape Province

October 2014

Author: Professor Michael Noble

Sothern African Social Policy Research Insights

saspri

Disclaimer:

The author:

Professor Michael Noble is emeritus Professor of Social Policy at the University of Oxford and Executive Director of both The Southern African Social Policy Research Institute and Southern African Social Policy Research Insights (collectively referred to as SASPRI)

Acknowledgements:

Executive summary

This report presents a diagnostic evaluation of poverty and relative deprivation at small area level for the Eastern Cape province. The analysis uses the ward-level South African Index of Multiple Deprivation 2011 (SAIMD 2011) which is supplemented with ward-level income poverty data. The SAIMD 2011 profiles deprivation in relation to four 'domains' or dimensions of deprivation. The four domains relate to material deprivation, employment deprivation, education deprivation and living environment deprivation, and are combined with equal weights into an overall Index of Multiple Deprivation. This enables all wards of the Eastern Cape to be compared across the province, and for them to be set within the national context of all wards in South Africa.

Chapters 1 and 2 provide an introduction to the report and background to the SAIMD 2011 respectively. In Chapter 3 the concept of relative deprivation is explained. Chapter 4 provides an overview of the SAIMD 2011 in terms of its components and in Chapter 5 the four domains are described in detail including their component indicators. Chapter 6 summarises the methodology for constructing the domains and the overall SAIMD 2011. Although the SAIMD 2011 is a ward level index it can be summarised at province, district municipality and local municipality levels. This is possible by constructing the population weighted average rank of the wards comprising the higher level geographies. The first part of Chapter 7 presents this summary information.

The population weighted average rank of wards in the Eastern Cape province is 1572. Using this measure, the Eastern Cape is the most multiply deprived province in South Africa. In terms of the component domains of deprivation, the Eastern Cape has the highest rates of material deprivation (52%) and employment deprivation (47%). As regards living environment deprivation (at nearly 60%), it is second only to Limpopo province. The province is the third most deprived in terms of education deprivation at (28%) with only North West (29%) and the Northern Cape (30%) having greater rates of deprivation.

There are six district municipalities and two Metropolitan authorities within the Eastern Cape. Using the population weighted average rank of the wards we find that Alfred Nzo is the most deprived district both within the Eastern Cape and in South Africa as a whole. O.R. Tambo district is next most deprived in the Eastern Cape and third most deprived in South Africa as a whole. In Alfred Nzo district 92% of the population are living environment deprived, 74% are materially deprived, 58% of employment deprived and 38% are education deprived. In all but education, these are the highest rates at district/metro level within the province.

Drilling down to local municipality level the five most deprived municipalities are Ntbankulu, Port St Johns, Mbizana, Ngquza Hill and Engcobo. These districts all fall within the former Transkei homeland. More than half (20) of the 39 local municipalities/metro areas in the Eastern Cape have living environment deprivation rates that are over 60%.

Turning to ward level multiple deprivation, 31% of the 715 wards in the Eastern Cape are in the most multiply deprived decile nationally and 47% are in the most multiply deprived quintile nationally using the SAIMD 2011. The most multiply deprived wards are almost exclusively within the former Transkei and to a lesser extent the former Ciskei homelands. In fact, a detailed homeland analysis reveals that the former homelands have the highest levels of multiple deprivation across South Africa and, of all the former homelands, the former Transkei is consistently the most deprived.

Using commonly employed poverty lines it is possible to construct poverty headcount ratios at ward level. Using this information it is apparent that the distribution of income poverty closely matches the distribution of multiple deprivation and in both cases the former homelands in the province are the most multiply deprived and most income poor areas in the Eastern Cape.

This analysis provides evidence for the Eastern Cape government to enable them to profile deprivation at four spatial levels (province, district municipality/metro, local municipality and ward) and to set these areas in the context of the whole of South Africa. Such evidence can be used to ensure that resources to tackle poverty and deprivation are directed in proportion to the level of need.

Contents

1.   Introduction

This report presents a diagnostic evaluation of poverty and multiple deprivation in the Eastern Cape Province utilising both the South African Index of Multiple Deprivation 2011 (SAIMD 2011) at ward level and an analysis of income poverty at ward level.

The SAIMD 2011 is a weighted aggregate of four domains or dimensions of deprivation. These are: material deprivation, employment deprivation, education deprivation and living environment deprivation. Both the overall SAIMD 2011 and the component domains are presented and analysed at ward level across the province.

Additionally, income poverty utilising two commonly used income poverty lines are analysed at ward level across the province.

2.   Background

Both the SAIMD 2011 at ward level and the income poverty measures at ward level have been developed by SASPRI to facilitate sub municipality analysis of multiple deprivation and its component domains.[1]

The SAIMD 2011 is the latest in a series of indices of multiple deprivation for South and Southern Africa that have been developed using census data to describe multiple deprivation at sub municipality level. The original South African study for 2001 was at ward level (Noble *et al*., 2006a and 2006b; Noble *et al*., 2009b) and was followed by a series of further refinements to develop a very small area or datazone level index for 2001 (Noble *et al*., 2009a; Noble and Wright, 2013), a series of child focused indices (Barnes *et al*.. 2007; Barnes *et al*.. 2009; Wright *et al*., 2009a) and updates to 2007 at municipality level (Wright and Noble, 2009; Wright *et al.,* 2009b) together with a modelled SAIMD at data zone level for 2007 (Noble *et al.,* 2010a). Indices have also been produced for Namibia (Noble *et al.*, 2011). The ward and datazone level 2001 indices have been used in many ways by national and provincial government including targeting areas for the take-up of Child Support Grant, prioritising wards for specific antipoverty interventions, and in the case of the City of Johannesburg, as part of the mechanism to target its indigency policy. Specific reports utilising the indices have been developed for various provinces and also for the city of Johannesburg.

---

[1] Sections of this report relating to background and general description of the poverty and deprivation measures draw on a high level national report (Noble et al., 2013).

3.   The Importance of ward level measures of multiple deprivation

Spatial patterns of poverty and multiple deprivation are not random. The spatial distribution reflects the outcome of a number of dynamic social processes and factors which include migration, availability and cost of living space, community preferences, current and historical policies. The latter is particularly important in South Africa where the spatial legacy of apartheid means that poor South Africans are concentrated spatially and tend to reside either in formerly racially segregated 'townships' around cities created or confirmed as a result of the Group Areas Acts 1950-1966, or in former homelands created in colonial times and further promulgated under the Bantu Authorities Act 1951 (Christopher, 1994). Within the urban townships the very poorest people tend to live in informal settlements.

By documenting this spatial distribution at small area level policymakers can effectively target resources and policies (Smith, 1999; Kleinman, 1999; Smith *et al*., 2001) to complement mainstream services. This process can be further enhanced by analysing not only the overall index of multiple deprivation but also the component domains and so obtain a more nuanced picture.

What is multiple deprivation and how does it differ from poverty?

The definition of multiple deprivation adopted in this report follows that given by Townsend in 1987 who defined people as deprived if 'they lack the types of diet, clothing, housing, household facilities and fuel and environmental, educational, working and social conditions, activities and facilities which are customary' (Townsend, 1987: 131, 140). Poverty. on the other hand, can be thought of as referring to the lack of resources which lead to deprivation. This is again consistent with Townsend who argued that people are poor if 'they lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved in the societies to which they belong' (Townsend, 1979: 31). 'Deprivation' thus refers to people's unmet needs, whereas 'poverty' refers to the lack of resources required to meet those needs. The model of multiple deprivation employed in this report flows from these definitions. Multiple deprivation is conceptualised as an accumulation of single dimensions or domains of deprivation (Townsend, 1987).

In this report, in addition to an analysis of multiple deprivation, a complementary analysis of income poverty at small area level using two commonly used poverty lines is also undertaken (see Section 8).

Dimensions of deprivation

As has been articulated elsewhere (e.g. Noble *at al*., 2006a) the model of multiple deprivation which underpins the SAIMD 2011 requires the separate measurement of different dimensions (or domains) of deprivation, such as employment deprivation and education deprivation, which are then combined with appropriate weighting into a single measure of multiple deprivation. Each of the individual domains of deprivation is, however, also expressed as a domain specific index of deprivation. This is important as they may be used individually for specific policy purposes where an overall index of multiple deprivation might be less appropriate.

4.   Introducing the SAIMD 2011

The model of multiple deprivation

As we have indicated each domain of deprivation measures a specific type of deprivation. In some domains these are measured at the household level (for example, in the Material Deprivation Domain), whereas in other domains these are measured at the individual level (for example, in the Education Deprivation Domain). People (or households) may be counted as deprived in one or more of the domains, depending on the number of types of deprivation that are experienced. However, within each domain, there is no double counting. The overall SAIMD 2011 combines each of these individual domains of deprivation using equal weights.

Domains

The selection of the domains of deprivation for the SAIMD 2011 was strongly influenced by the domains selected in respect of the SAIMD 2001 in all its various configurations (in particular Noble *et al.*, 2006a and Noble *et al*., 2009a). In the SAIMD 2001 five domains of deprivation were constructed using the 2001 Census: Income and Material Deprivation, Employment Deprivation, Health Deprivation, Education Deprivation, and Living Environment Deprivation. Because the SAIMD 2011 has been constructed from published data, it was not possible to construct a health deprivation domain.

Furthermore, due to the nature of the Census data extraction tool (Superstar) it was not possible to construct a combined income and Material Deprivation Domain following the same methodology as the SAIMD 2001. However, the Material Deprivation Domain that was constructed for the SAIMD 2011 is, arguably, more consistent with the original Townsend definition of deprivation in that it does not mix deprivations with the lack of resources (i.e. income) which result in those deprivations. Instead, as has been indicated, two separate income poverty indices are presented in Section 8.

The actual domains comprising the SAIMD 2011 are as follows:

1) Material Deprivation Domain
2) Employment Deprivation Domain
3) Education Deprivation Domain
4) Living Environment Deprivation Domain

It is important to emphasise the integrity of the domains of deprivation. So, for example, the Employment Deprivation Domain reflects exclusion from the world of work and not the lack of income such exclusion generates. Clearly the dimensions of deprivation are related and it is quite possible for the same person or household to be represented in more than one domain. So for example, employment deprivation is usually associated with low income and low income can lead to high levels of material deprivation. Similarly, education deprivation can result in employment deprivation. Nevertheless, the aggregate effects of different deprivations are also of interest and so an aggregate index of multiple deprivation is also generated.

It should also be emphasised that in any particular domain the proportion of people or households experiencing that particular deprivation in an area is measured, meaning that the ward domain score is an easy to interpret rate.

Data source

The SAIMD 2011 is derived entirely from the 2011 Census of Population carried out in October 2011. The data are derived from Statistics South Africa's data published through its Superstar tool.

Using this tool data were extracted for each domain index. The number of indicators per domain is indicated in the description of the domains that follows. Denominators were obtained in the same extraction process and relate to the numerator within each domain.

Selection of indicators

The selection of indicators for each domain were informed, wherever possible, by an earlier piece of research which sought the views of all South Africans on the necessities for an acceptable standard of living (Noble *et al.*, 2007; Wright *et al.*, 2010; Wright and Noble, 2013). The domains themselves were selected because they were used in the SAIMD 2001 which, in turn, had been selected after a stakeholder consultation process (Noble *et al.*, 2006a and 2006b).

As was the case for the SAIMD 2001, we endeavoured to include within each domain 'a parsimonious (i.e. economical in number) collection of indicators that comprehensively captured the deprivation for each domain, but within the constraints of the data available from the Census' (Noble *et al.,* 2006a). Three further criteria were kept in mind when selecting indicators:

- They should be 'domain specific' and appropriate for the purpose (as direct as possible measures of that form of deprivation);
- They should measure major features of that deprivation (not conditions just experienced by a very small number of people or areas);
- They should be statistically robust.

5.   Domains and component indicators

Material Deprivation Domain

Purpose of domain

The purpose of this domain is to capture the proportion of households in a ward experiencing material deprivation.

Background

There are many items that could, theoretically, comprise a Material Deprivation Domain. Given that the purpose of the SAIMD 2011 is to produce a small area (in this case electoral ward) measure, we are constrained by items that are measured within the 2011 Census.

However, notwithstanding the data constraint, we still need a rationale for selecting indicators from the 2011 Census. One of the most attractive rationales is to consider what South Africans regard as necessities for an acceptable standard of living. Following an international tradition of what is sometimes referred to as consensual poverty approaches, a study was undertaken in South Africa to derive a list of items considered to be "essential" for an acceptable standard of living (e.g. Wright *et al.*, 2010). The results of this study have informed the selection of indicators for both this domain and the Living Environment Deprivation Domain.

Indicators

- Number of households who do not have access to a refrigerator; or
- Number of households with neither a landline nor a cell phone; or
- Number of households with neither a television nor a radio.

Ownership of a refrigerator is regarded as a basic asset for safe storage of food. Ownership of a radio or television represents an important mode of communication with the outside world and a means of accessing information critical to one's life and livelihood. A cell phone (or a landline) is regarded as important at a number of levels – for those of working age and out of the labour market it is essential for accessing jobs, for older people it is a lifeline to relatives and social and health care services.

Combining the indicators

A simple proportion of households experiencing one or more of the deprivations was calculated (i.e. the number of households without a refrigerator, and/or with neither a

television nor a radio, and/or with neither a cell phone nor a landline, divided by the total number of households).

Employment Deprivation Domain

Purpose of domain

This domain measures employment deprivation in terms of the expanded definition of unemployment for people of working age.

Background

In addition to the 'official' definition of the unemployed (which accords with the definition promulgated by the International Labour Organisation) we also consider those who are 'discouraged workers' as it is recommended that they should be included (e.g. Lloyd and Leibbrandt, 2013). This generates a measure that is sometimes regarded as the 'expanded' definition of unemployment.

Indicators

- Number of people aged 15 to 64 inclusive who are unemployed (using official definition); plus
- Number of people aged 15 to 64 inclusive who are discouraged workers.

Statistics South Africa (StatsSA) gives the official definition of the unemployed as 'those people aged 15–65[2] years who:

- did not work during the 7 days prior to 10 October;
- want to work and are available to start work within a week of the interview; and
- have taken active steps to look for work or to start some form of self-employment in the 7 days prior to 10 October. (Statistics South Africa, 2012: 78).

'Active steps to seek work' are defined by StatsSA as: 'Steps such as registration at unemployment exchange, applications to employers, checking at work sites or farms, placing or answering newspaper advertisements, seeking assistance of friends, etc.' (Statistics South Africa, 2012: 6).

Discouraged Workers are those who
- did not work during the 7 days prior to 10 October;
- want to work and are available to start work within a week of the interview;
- Have not taken 'active steps to seek work'
- Gave the reason for not working (P27) as 'no jobs available'

Combining the indicators

By combining the numbers of 'officially' unemployed with the 'discouraged workers' we obtain the numerator for this domain which accords with the expanded definition of unemployment.

The denominator is the labour force (sometimes referred to as the economically active population). This comprises the employed, the official unemployed, and the discouraged workers aged 15 – 64 inclusive.

---

[2] Although StatsSA used the definition 15-65 in the metadata, the actual data only has values for ages 15 to 64 inclusive and this latter age range is therefore used in the index.

Education Deprivation Domain

Purpose of domain

The purpose of this domain is to capture the extent of deprivation in terms of educational qualifications in a local area for adults aged 18 to 64 years inclusive.

Background

It is well documented that the level of education an individual has achieved determines both current income and savings potential and future opportunities for individuals and their dependents (e.g. Bhorat *et al.*, 2004).

Unfortunately there are no Census questions on educational attainment per se but there is information on the highest level of education reached and this will be a good proxy for educational attainment. Many of the disparities in educational achievement throughout the adult population are direct legacies of the apartheid education system and, in particular the Bantu Education Act 1953. Thus it is to be expected that these disparities in education will be spatially contoured.

Indicator

- Number of 18-64 year olds (inclusive) with no schooling at secondary level or above.

The denominator is the total number of 18-64 year olds (inclusive).

Living Environment Deprivation Domain

Purpose of domain

The purpose of this domain is to identify deprivation relating to the poor quality of the living environment.

Background

This domain considers different aspects of the immediate environment in which people live that impact on the quality of their day-to-day life. This covers issues which might be regarded as service delivery deprivations. This domain is measured at the individual level.

Indicators

- Number of people without an adequate water supply; or

- Number of people without access to an adequate toilet; or
- Number of people without use of electricity for lighting; or
- Number of people living in a house that is a shack

We define adequate water supply here as 'piped water inside dwelling', 'piped water inside the yard', and 'piped water on community stand within 200 metres'. We define adequate toilet here as 'flush toilet connected to the sewerage', 'flush toilet connected to septic tank', and 'ventilated pit latrine'.

Combining the indicators

A simple proportion of people experiencing one or more of the deprivations was calculated (i.e. the number of people without an adequate water supply and/or without adequate toilet facilities and/or without electricity for lighting and/or a house that is a shack, divided by the total population).

6.   Methodology

Use of the 2011 Census

The indicators and the denominators for the domains were extracted from the ward tables from 2011 Census using the Superstar tool. Data were exported in CSV format and imported into STATA for further analysis.

Creating domain indices

Dealing with small numbers

Each of the domain indices were created as simple rates. However, in line with good practice, statistical procedures were undertaken to deal with small numbers in the denominator in some wards. Such small numbers can result in relatively large standard errors which need to be addressed. It used to be argued that because Census data are, by definition, not samples but counts of the whole population then issues of standard error and procedures to deal with them are not relevant. However, current statistical practice is that a census is simply a sample from a 'super population' and it is entirely appropriate to take steps to measure and deal with standard error.

The technique employed is known as 'empirical Bayes shrinkage estimation' (Noble *et al.*, 2006c). Basically, the technique identifies wards with large standard errors and moves them towards a more reliable score – in this case the local municipality mean to an extent which depends on the size of the standard error and the level of heterogeneity in the local municipality in which the ward is located. If the scores are robust then movement is negligible. Sensitivity testing undertaken by the research team indicates that shrinkage estimation has very little impact on the overall domain scores. Nevertheless, it has been applied to accord with good practice.

Combining indicators into domain indices

For each domain of deprivation the aim is to obtain a single summary measure (or Domain Index) whose interpretation is straightforward in that it is expressed in meaningful units (i.e. proportions of people or of households experiencing that form of deprivation). The advantage of simple proportions is twofold – first they are easy to understand and second it is not necessary to combine the indicators in a domain using complex statistical procedures such as factor analysis. There is no double counting of individuals within a domain. An individual may be captured in more than one domain but this is not double counting: it is simply identifying that they are deprived in more than one way.

Four domain indices were created which were then combined into the overall SAIMD 2011.

Combining the four domain indices into the SAIMD 2011

Standardisation and transformation

Each domain index is treated as a distinct measure of deprivation which can be combined into an overall index of multiple deprivation – the SAIMD.

In order to combine the domain indices it is important to first standardise them and then transform them to a common distribution. Standardisation is important as it puts each domain onto the same metric and gives each domain the same range. The standardisation is achieved by simply ranking the domain score. Thus for each domain the standardised score ranges from 1 to 4,277 (the number of wards in South Africa in 2011).

The ranked domain scores are then transformed in such a way that they can be combined with explicit weights and in such a way that deprivation on one domain is not cancelled out by lack of deprivation on another domain – in other words so that the deprivations are cumulative. The distribution selected for transformation is the exponential distribution.

The exponential distribution was selected for the following reasons. First, it transforms each domain so that they each have a common distribution, the same range and identical maximum/minimum value, so that when the domains are combined into a single index of multiple deprivation the (equal) weighting is explicit; that is there is no implicit weighting as a result of the underlying distributions of the data. Second, it is not affected by the size of the ward's population. Third, it effectively spreads out the part of the distribution in which there is most interest; that is the most deprived wards in each domain.

Each transformed domain has a range of 0 to 100, with a score of 100 for the most deprived ward. The exponential transformation that was selected for transforming the domains in the ward level SAIMD stretches out the most deprived 25% of wards in the country. The chosen exponential distribution is one of an infinite number of possible distributions.[3]

Weighting

There are many possible approaches to weighting each domain that contributes to the overall SAIMD. These include weighting driven by theoretical consideration; weighting that is empirically driven; weighting that is determined by policy relevance; weighting that is

---

[3] See for further information Noble *et al*. (2006b).

determined by consensus; and weighting that is arbitrary. For the SAIMD 2011 the same weights were adopted as were employed in the SAIMD 2001 - namely equal weights.[4]

---

[4] For a full discussion see Noble *et al*. (2006b).

7.   The geography of multiple deprivation

How to interpret the ward level results

There are five ward level measures: four domain measures (which were combined to make the overall SAIMD 2011) and one overall SAIMD 2011. These five measures are each assigned a rank. The most deprived ward for each measure is given a rank of 1. The ranks show how a ward compares to all the other wards in South Africa.

The four domain measures and ranks

Each domain or dimension of deprivation has a score which is the proportion of the population (or in the case of the Material Deprivation Domain the proportion of households) experiencing each of the deprivations. These domain measures (which can be referred to as domain indices) are then ranked and can be used separately to describe patterns of each type of deprivation in the province.

Within a domain, the higher the score, the more deprived the ward. However, the scores should not be compared between domains as they have different ranges. To compare between domains, the ranks should be used. For presentation purposes, a rank of 1 is assigned to the most deprived ward.

The overall SAIMD 2011

The overall SAIMD 2011 describes a ward by combining information from all four domains: Material Deprivation, Employment Deprivation, Education Deprivation and Living Environment Deprivation. These are combined in three stages; first each domain is standardised by ranking; the ranks are then transformed to a standard distribution – the exponential distribution described above. Finally the domains are combined using equal weights. The final ward level SAIMD 2011 is then ranked with the most deprived ward given a rank of 1 and the least deprived ward a rank of 4,277.

The SAIMD 2011 at ward level can therefore be described as the combined sum of the weighted and exponentially transformed rank of all the domains scores. The larger the SAIMD score, the more deprived the ward. However, because of the way that the component domains scores have been transformed, the scores are not linear. Thus a ward with a score of 40 can be said to be more deprived than a ward with a score of 20 but cannot be regarded as twice as deprived.

National and provincial results

Because the overall SAIMD 2011 is a ward level measure, it is not possible to give direct national and provincial SAIMD scores. However, it is possible to summarise the ward level SAIMD at provincial level (and at other spatial scales such as district municipality and local municipality). There are different ways in which this can be done, but the most meaningful is to calculate the population weighted average rank of the wards for each higher level geography (Noble *et al.*, 2000).

At province level the population weighted average rank for the wards in each province can be calculated. The lower the population weighted average rank of the wards in that province, the more overall multiple deprivation there is in the province. From **Table 1** below we can see that the Eastern Cape has a population weighted average Rank of 1572 and is the most deprived province in South Africa on this measure.

Table 1: Population weighted average ward rank of the SAIMD 2011 for each province in South Africa

Province Code	Province Name	Population weighted Average Rank	Rank Order where 1=most deprived
2	Eastern Cape	1572	1
9	Limpopo	1772	2
6	North West	2016	3
5	KwaZulu-Natal	2020	4
3	Northern Cape	2312	5
8	Mpumalanga	2318	6
4	Free State	2611	7
7	Gauteng	3275	8
1	Western Cape	3339	9

Another way of illustrating this point is shown in the box plot below.

Figure 1

Ward-level SAIMD 2011
Interquartile Range by Province
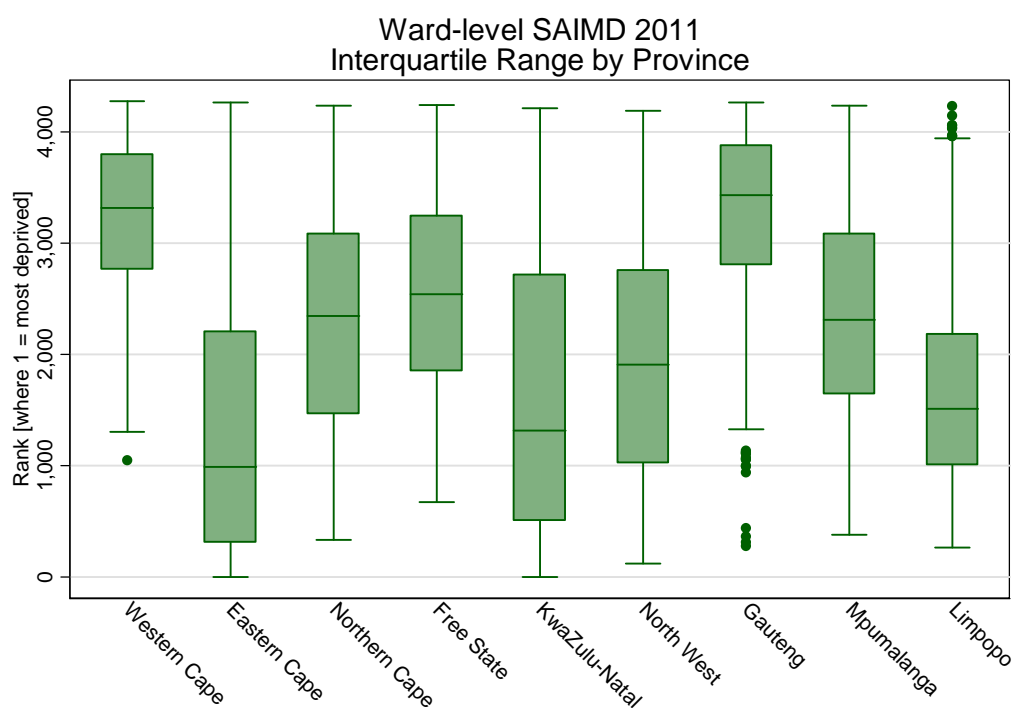
These box plots and those that follow should be interpreted as follows.

The range of deprivation is illustrated by the vertical line (with outliers shown as dots). So, the Eastern Cape's most deprived ward is ward No. 11 in Port St Johns local municipality and is ranked number 1 in the country (where 1 = most deprived) and the Eastern Cape's least deprived ward is ward no. 4 in Buffalo City Metro area and is ranked 4267 (where 4,277= least deprived). This shows the very wide range in deprivation in the Eastern Cape with wards at both extreme ends of the spectrum, i.e the most deprived ward and the eleventh least deprived ward nationally (where 4,277 = least deprived). This reflects the high levels of inequality in the Eastern Cape and the manner in which its apartheid geography continues to determine the spatial pattern and distribution of multiple deprivation in the province. The Eastern Cape's most deprived ward, in Port St Johns local municipality, is in the former homeland of the Transkei, and its least deprived ward, is in a Metro Area (in Buffalo City) most of which never formed part of the two former homelands in the Eastern Cape (Transkei and Ciskei).

The green box indicates the range of the middle 50 per cent of wards in the province (the interquartile range[5]) while the horizontal line in the box is the median ward's rank. The box

---

[5] The interquartile range (IQR) is 'a measure of dispersion calculated by taking the difference between the first and third quartiles (that is, the 25th and 75th percentiles). In short, the IQR is the middle half of a distribution' (Vogt, 1999: 143).

for the Eastern Cape is relatively long, indicating that the Eastern Cape wards occupy a fairly wide range. In contrast, the Western Cape and Gauteng have compact interquartile ranges, the majority of wards concentrated in the least deprived part of the national distribution.

Although the overall SAIMD 2011 can only be expressed at higher spatial levels in terms of population weighted average ranks, the individual domains can be expressed as simple percentages. The following **Table 2** provides this information.

Table 2: Provincial rates of deprivation for the four domains of the SAIMD 2011

	Material Deprivation %	Employment Deprivation %	Education Deprivation %	Living Environment Deprivation %
Western Cape	24.8	25.1	16.8	19.1
Eastern Cape	52.0	47.3	28.5	59.6
Northern Cape	39.5	34.1	30.0	32.1
Free State	33.3	38.9	23.4	32.9
KwaZulu-Natal	43.0	42.3	23.4	55.3
North West	41.7	37.9	28.7	55.4
Gauteng	30.8	29.8	12.6	21.5
Mpumalanga	34.9	38.2	24.4	54.5
Limpopo	40.2	46.4	24.3	71.9
South Africa	37.1	36.0	20.9	43.8

While the rates of deprivation are below 40% for three of the domains at national level, there is wide variation across the provinces for each domain. The Western Cape and Gauteng generally have the lowest rates of deprivation for each of the 4 domains, while Limpopo, the Eastern Cape, KwaZulu-Natal and North West have relatively higher rates of deprivation in each of the domains, than the other provinces.

The Eastern Cape is the second most Living Environment deprived province (60%), after Limpopo (72%). In terms of Employment Deprivation, the Eastern Cape fares worst of all provinces (47%). On the Material Deprivation Domain, Eastern Cape scores highest (52%), followed by KwaZulu-Natal (43%), then the North West (42%) and Limpopo (40%).

Education is the only domain where relatively low rates of deprivation can be observed across all provinces, with the Northern Cape achieving the highest score (30%), closely

.

followed by North West (28.7%) and the Eastern Cape (28.5%). However, relative to some of the other provinces, such as Gauteng and the Western Cape (13% and 17% respectively), the rates for the Northern Cape, the Eastern Cape and North West are still high.

District Municipality Results

Using the same technique as was employed in Table 1 above, it is possible to describe the ward level SAIMD in terms of population weighted average rank for each district municipality in the Eastern Cape. There are 52 District Municipalities in South Africa (including the Metro municipalities). The most deprived District Municipality in South Africa is given the rank of 1 and the least deprived a rank of 52. There are six District Municipalities, and two Metros, in the Eastern Cape.

From **Table 3** it is apparent that Alfred Nzo district municipality is most deprived on this measure both within the Eastern Cape and nationally with a population weighted average rank of 559, whilst the Nelson Mandela Bay metro area is least deprived in the province (rank of 44). National ranks are presented in this table.

Table 3: Population weighted average ward rank of the SAIMD 2011 for each district municipality or metropolitan area in the Eastern Cape

District Code	District Municipality Name	Population weighted average rank	National Rank where 1=most deprived
DC44	Alfred Nzo	559	1
DC15	O.R.Tambo	785	3
DC12	Amathole	913	5
DC14	Joe Gqabi	1132	7
DC13	Chris Hani	1244	11
DC10	Cacadu	2369	29
BUF	Buffalo City	2630	36
NMA	Nelson Mandela Bay	3069	44

It is also possible to present this information in terms of the interquartile range of the ward ranks for each of the district municipalities and the two metropolitan areas. **Figure 2** below gives this information. As can be seen, wards in Alfred Nzo and O.R. Tambo Districts have a narrow interquartile range focused entirely at the deprived end of the spectrum. Wards in Chris Hani District, Amathole District and Joe Gqabi Disrict also are concentrated towards the deprived end of the spectrum. On the other hand, the interquartile ranges for wards in

Nelson Mandela Bay, Buffalo City and Cacadu are towards the least deprived end of the spectrum.

Figure 2

Ward-level SAIMD 2011 Eastern Cape Province
Interquartile Range by District Municipality (National Ranks)
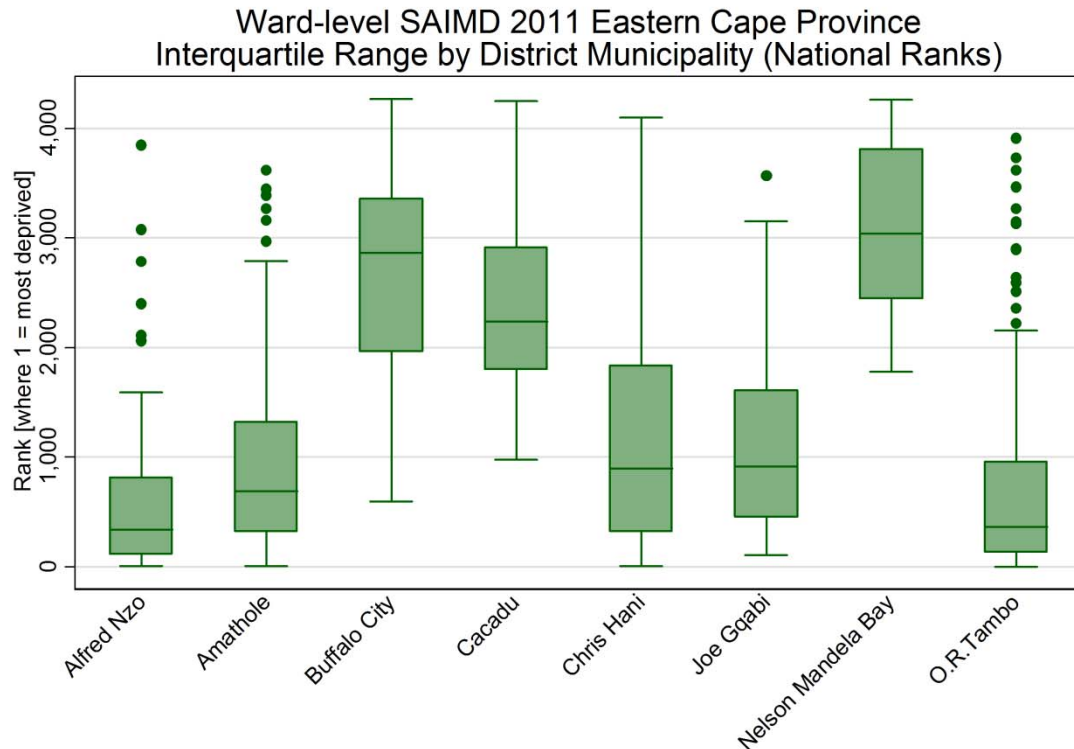
The District municipalities can be further analysed using boxplots to demonstrate the contribution to deprivation made by the wards of the component local municipalities. The next two figures present the interquartile range for ranks of wards in the local municipalities in Alfred Nzo District and Nelson Mandela Bay and Buffalo City metros.

From the Alfred Nzo chart (**Figure 3**) it is apparent that the wards in each of the constituent local municipalities are concentrated towards the deprived end of the spectrum with Ntabankulu standing out as the most deprived. When contrasting this with the Metro areas chart (**Figure 4**), it is evident that the wards in both Metros are concentrated in the least deprived end of the spectrum, but it is clear that, of the two, Nelson Mandela Bay's wards are more concentrated in the least deprived part of the distribution. The interquartile range for Buffalo City is wider and begins nearer the more deprived end of the spectrum showing that in Buffalo City, while the majority of wards might be less deprived there are still wards to be found in the most deprived end of the range.

Figure 3
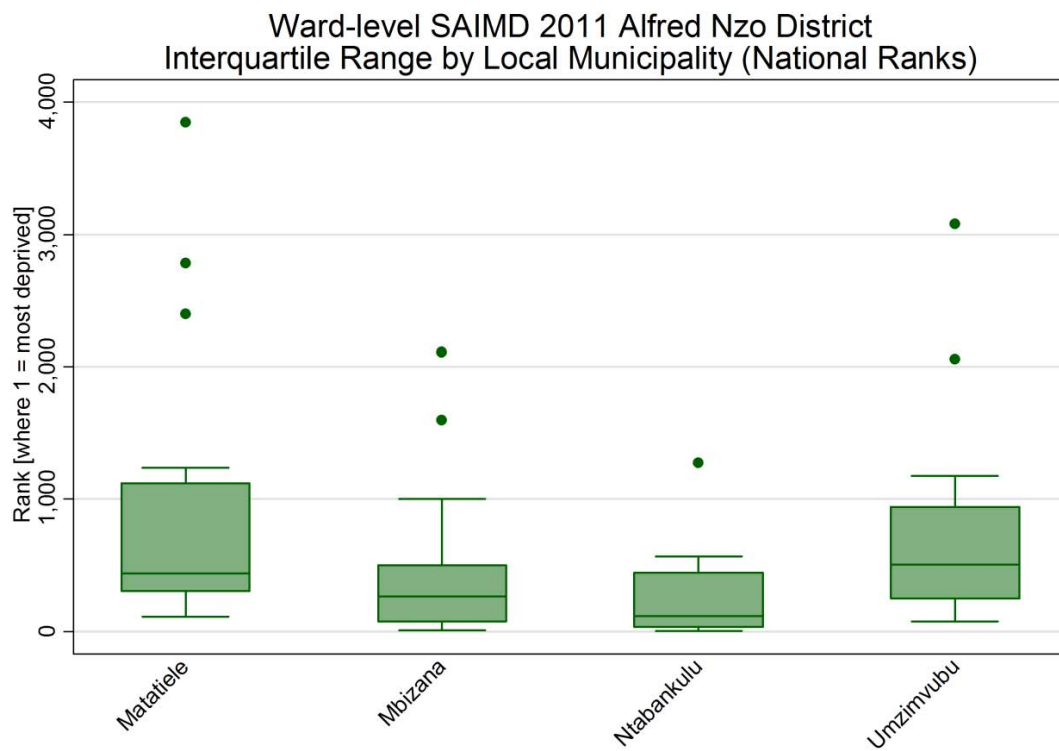

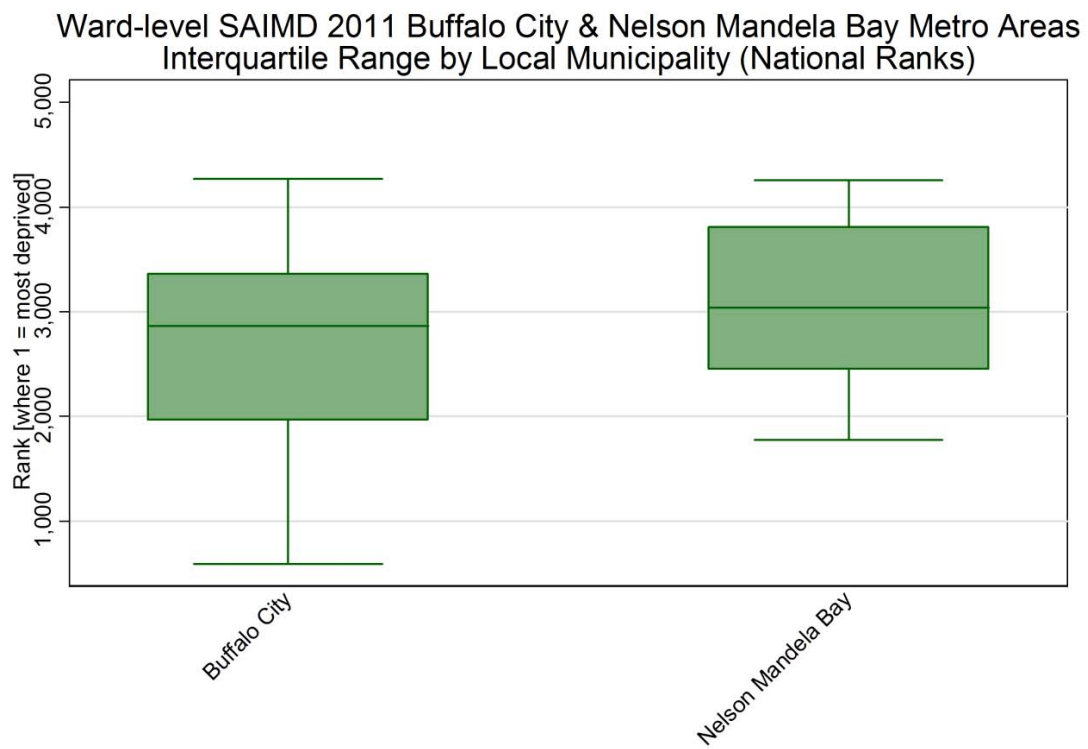Ward-level SAIMD 2011 Alfred Nzo District
Interquartile Range by Local Municipality (National Ranks)

Figure 4

Ward-level SAIMD 2011 Buffalo City & Nelson Mandela Bay Metro Areas
Interquartile Range by Local Municipality (National Ranks)

Table 4: District Municipality and Metropolitan area rates of deprivation for the four domains of the SAIMD 2011

2011

District Code	District Municipality Name	Material deprivation %	Employment Deprivation %	Education Deprivation %	Living Environment %
BUF	Buffalo City	38.3	41.5	16.3	36.1
DC10	Cacadu	41.1	30.8	30.5	29.7
DC12	Amathole	61.6	57.2	35.0	79.2
DC13	Chris Hani	55.7	51.3	36.4	62.2
DC14	Joe Gqabi	58.8	46.1	38.4	67.4
DC15	O.R.Tambo	67.1	57.4	35.6	85.8
DC44	Alfred Nzo	74.4	57.7	38.0	91.6
NMA	Nelson Mandela Bay	28.5	41.9	14.1	14.4

Table 4 presents district level deprivation rates by domain. In this table it is evident that Alfred Nzo is the most deprived district municipality in the Eastern Cape across all the domains, except for the Education Deprivation Domain where it is slightly less deprived (at 38.0%) than Joe Gqabi district municipality (38.4%). It has especially high rates of deprivation in the Material deprivation (74.4%) and Living Environment (91.6%) domains. In sharp contrast, Nelson Mandela Bay has the lowest rates of deprivation in all the domains, save Employment deprivation where Cacadu (30.8%) has the lowest deprivation rate. The contrast is starkest when looking at the Living Environment deprivation rate - in Nelson Mandela Bay it is a mere 14.4% compared to Alfred Nzo's 91.6%. Other districts with high Living Environment deprivation rates in the Eastern Cape are OR Tambo District (85.8%) and Amathole District (79.2%). All these three districts (Alfred Nzo, Amathole, and OR Tambo) have parts of former homelands (either Transkei or Ciskei) within their boundaries.
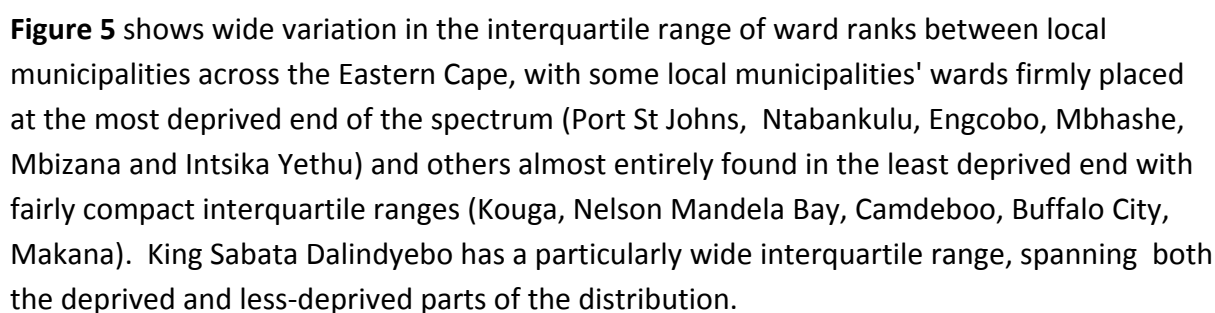
Local Municipality Results

Population weighted average ranks for the local municipalities in the Eastern Cape are presented in Table 5. Ntabankulu, Port St Johns, Mbizana, Ngquza Hill, and Engcobo are the five local municipalities with the lowest population weighted average rank and are therefore the five most deprived local municipalities on the overall SAIMD 2011 in the Eastern Cape. Each of these local municipalities contains part of the former Transkei homeland. The five least deprived local municipalities on this measure are Buffalo City, Kouga, Camdeboo, Makana, and Nelson Mandela Bay.

Table 5: Population weighted average ward rank of the SAIMD 2011 for each Local Municipality in the Eastern Cape

Municipality code	Municipality Code	Population weighted Average Rank	National Rank where 1 =most deprived
298	Ntabankulu	280	2
291	Port St Johns	304	3
297	Mbizana	395	6
290	Ngquza Hill	399	7
284	Engcobo	449	9
270	Mbhashe	455	11
282	Intsika Yethu	520	13
286	Elundini	589	16
293	Mhlontlo	615	17
283	Emalahleni	664	22
292	Nyandeni	674	23
296	Umzimvubu	689	24
295	Matatiele	835	33
271	Mnquma	847	34
274	Ngqushwa	938	39
287	Senqu	1083	48
272	Great Kei	1132	52
273	Amahlathi	1155	54
285	Sakhisizwe	1170	55
279	Tsolwana	1221	60
294	King Sabata Dalindyebo	1335	68
276	Nkonkobe	1451	74
280	Inkwanca	1553	80
266	Sundays River Valley	1823	98
289	Gariep	1882	103
277	Nxuba	1969	113

265	Ndlambe	1980	115
263	Ikwezi	2011	119
262	Blue Crane Route	2049	123
267	Baviaans	2067	129
269	Kou-Kamma	2157	136
278	Inxuba Yethemba	2397	154
281	Lukanji	2408	155
288	Maletswai	2423	156
260	Buffalo City	2630	174
268	Kouga	2681	181
261	Camdeboo	2757	185
264	Makana	2769	188
299	Nelson Mandela Bay	3070	209

The box plot (**Figure 5**) below shows the interquartile range of ward ranks within each of the local municipalities (including the two metros) in the Eastern Cape.

Figure 5

Ward-level SAIMD 2011 Eastern Cape Province
Interquartile Range by Local Municipality (National Ranks)

Figure 5 shows wide variation in the interquartile range of ward ranks between local municipalities across the Eastern Cape, with some local municipalities' wards firmly placed at the most deprived end of the spectrum (Port St Johns, Ntabankulu, Engcobo, Mbhashe, Mbizana and Intsika Yethu) and others almost entirely found in the least deprived end with fairly compact interquartile ranges (Kouga, Nelson Mandela Bay, Camdeboo, Buffalo City, Makana). King Sabata Dalindyebo has a particularly wide interquartile range, spanning both the deprived and less-deprived parts of the distribution.

Table 6: Local Municipality rates of deprivation for the four domains of the SAIMD 2011

Local Municipality Code	Local Municipality Name	Material Deprivation %	Employment Deprivation %	Education Deprivation %	Living Environment Deprivation %
60	Buffalo City	38.3	41.5	16.3	36.1
261	Camdeboo	33.2	34.5	29.8	14.8
262	Blue Crane Route	44.6	38.2	36.8	23.3
263	Ikwezi	45.1	28.7	40.0	22.2
264	Makana	33.6	39.3	21.6	24.3
265	Ndlambe	42.2	38.3	32.9	40.2
266	Sundays River Valley	55.7	19.9	35.5	47.7
267	Baviaans	45.9	37.2	36.0	21.6
268	Kouga	36.5	25.8	26.7	30.5
269	Kou-Kamma	49.2	19.1	35.7	27.9
270	Mbhashe	77.1	58.7	42.7	94.8
271	Mnquma	68.1	57.0	31.5	85.2
272	Great Kei	54.5	46.4	38.5	71.5
273	Amahlathi	53.1	51.7	36.1	68.1
274	Ngqushwa	46.2	67.1	34.7	75.5
276	Nkonkobe	45.9	61.5	27.7	58.6
277	Nxuba	41.3	50.7	30.2	38.8
278	Inxuba Yethemba	36.2	33.5	34.1	13.9
279	Tsolwana	48.4	50.7	41.8	44.9
280	Inkwanca	45.9	48.2	39.7	16.0
281	Lukanji	36.3	46.9	23.5	30.6
282	Intsika Yethu	69.8	62.0	41.0	90.0
283	Emalahleni	59.6	61.5	44.0	77.9
284	Engcobo	76.8	60.2	45.3	90.9
285	Sakhisizwe	55.7	48.7	36.5	69.1
286	Elundini	74.8	53.9	40.9	85.4
287	Senqu	53.0	48.9	38.1	71.6
288	Maletswai	40.2	33.9	31.1	28.0
289	Gariep	42.5	34.7	40.1	27.8

Local Municipality Code	Local Municipality Name	Material Deprivation %	Employment Deprivation %	Education Deprivation %	Living Environment Deprivation %
290	Ngquza Hill	74.7	65.4	41.5	95.6
291	Port St Johns	76.5	69.2	45.9	93.2
292	Nyandeni	68.4	58.6	37.8	88.2
293	Mhlontlo	69.3	61.8	35.7	90.0
294	King Sabata Dalindyebo	58.4	49.0	28.5	73.8
295	Matatiele	71.0	49.1	35.4	84.5
296	Umzimvubu	73.4	59.1	32.5	88.9
297	Mbizana	73.7	60.5	40.9	97.4
298	Ntabankulu	84.8	67.9	45.4	94.2
299	Nelson Mandela Bay	28.5	41.9	14.1	14.4

More than half (20) of the 39 local municipalities/metro areas in the Eastern Cape have Living Environment deprivation rates that are over 60%. For a third (13) of the local municipalities, Living Environment deprivation is experienced by more than 80% of the population (Mbhashe 94.8%, Intsika Yethu 90%, Engcobo 90.9%, Ngquza Hill 95.6%, Port St Johns 93.2%, Mhlontlo 90%, Mbizana 97.4%, Ntabankulu 94.2%, Umzimvubu 88.9%, Matatiele 84.5%, Nyandeni 88.2%, Mnquma 85.2%, Elundini 85.4%). All of these areas are partly or entirely within the former homelands of the Eastern Cape. The other domain where rates of deprivation are particularly high is the Material Deprivation Domain. In this domain 13 of the local municipalities in the Eastern Cape have more than two thirds of their populations experiencing material deprivation.

Even though in some local municipalities some degree of variability in terms of deprivation in the 4 domains can be observed (for example, King Sabata Dalindyebo), several local municipalities in the Eastern Cape have high deprivation rates across the domains. These municipalities have more than 70% of their populations experiencing material deprivation, more than 60% employment deprived, with education deprivation rates above 40%, and living environment deprivation rates above 90% (Ntabankulu, Mbizana, Ngquza Hill, Port St Johns, and Engcobo), and all of them are exclusively within the Transkei former homeland.

In sharp contrast, local municipalities and metros which do not have the legacy of the former homelands, such as Nelson Mandela Bay Metro, have relatively low deprivation rates across the domains (28.5% for material deprivation, 41.9% for employment

deprivation, 14.1% for education deprivation, and 14.4% for the living environment deprivation).

Ward level results

The overall SAIMD 2011

Table 7 below shows for each province the number and percentage of wards in the most deprived decile (10%) and quintile (20%) nationally. When viewed in this way and given the overall levels of deprivation in the province, the Eastern Cape is the province with the the highest number of wards in the worst 10% of wards nationally (222 wards) and the highest percentage of its wards in the worst 10% nationally (31.1% of its wards). Even when the most deprived quintile is considered the Eastern Cape still has the highest number (336) and percentage of wards in the most deprived quintile (47%). This compares to 16.2% in Limpopo, 19.3% in North West, and 37.8% in KwaZulu-Natal.

Table 7: The percentage of each province's wards in the most deprived decile and the most deprived quintile of the SAIMD 2011
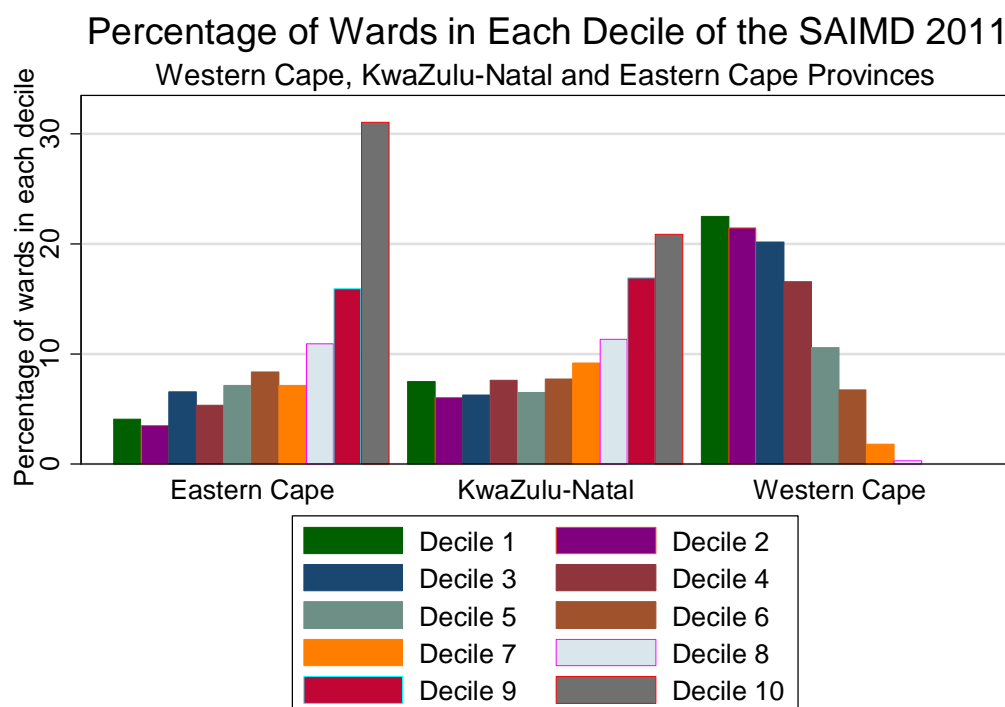
	N wards	N in 10% most deprived	N in 20% most deprived	% in 10% most deprived	% in 20% most deprived
Western Cape	387	0	0	0	0
Eastern Cape	715	222	336	31.1	47.0
Northern Cape	194	3	18	1.5	9.3
Free State	317	0	3	0	0.9
KwaZulu-Natal	828	173	313	20.9	37.8
North West Province	383	20	74	5.2	19.3
Gauteng	508	3	4	0.6	0.8
Mpumalanga	402	2	19	0.5	4.7
Limpopo	543	4	88	0.7	16.2

These results are further illustrated in the chart below (Figure 6), where the Eastern Cape has the highest percentage of its wards in deciles 8, 9, and 10 (the most deprived decile), with relatively few wards in deciles one and two. In this chart the Eastern Cape is compared with KwaZulu-Natal and the Western Cape.

As can be seen in the Western Cape the highest proportion of its wards are in the least deprived decile (decile 1) with progressively smaller proportions in subsequent deciles none in deciles 9 and 10. The entire graph for the Western Cape slopes in a completely different and opposite direction to the Eastern Cape graph, with the former starting off with high proportions of wards in the least deprived deciles and having lower proportions of wards in the more deprived deciles, and the latter having low proportions of wards in the least deprived decile and progressively higher proportions of wards in the more deprived deciles.

The picture for KwaZulu-Natal is similar in many respects to the Eastern Cape but different in other ways – while deciles 1 to 6 have proportions of wards which are similarly just below what one would expect if deprivation were distributed evenly across provinces, the Eastern Cape starts off with a distinctly lower proportion of wards in deciles 1 and 2 compared to KwaZulu-Natal. And even though in deciles 8, 9 and 10 there are progressively higher proportions of wards in both provinces, with deciles 8 and 9 being at exactly the same level as the Eastern Cape, a much higher proportion of wards is concentrated in decile 10 in the Eastern Cape than in KwaZulu-Natal.

Figure 6

Percentage of Wards in Each Decile of the SAIMD 2011
Western Cape, KwaZulu-Natal and Eastern Cape Provinces

The tables below list the 10 most deprived and 10 least deprived wards in the Eastern Cape. The Eastern Cape is at the top of the rankings in terms of the 10 most deprived wards both nationally and provincially. It has the most deprived ward (Port St Johns) both nationally and within the province, and for the rest of the 9 most deprived wards the national and provincial rankings are very similar. As can be seen and as is reflected elsewhere all of the

Eastern Cape's most deprived wards are in former homeland areas. An analysis of deprivation in the former homeland areas in the Eastern Cape is presented at the end of this section.

Eight of the 10 least deprived wards in the Eastern Cape are in the Nelson Mandela Metro, and the remaining 2 are in Kouga and Buffalo City respectively, showing that in the Eastern Cape the least deprived are concentrated in a handful of areas (mainly Metro areas) and are not distributed across the province.

Table 8: The 10 most deprived wards in the Eastern Cape province (SAIMD 2011)

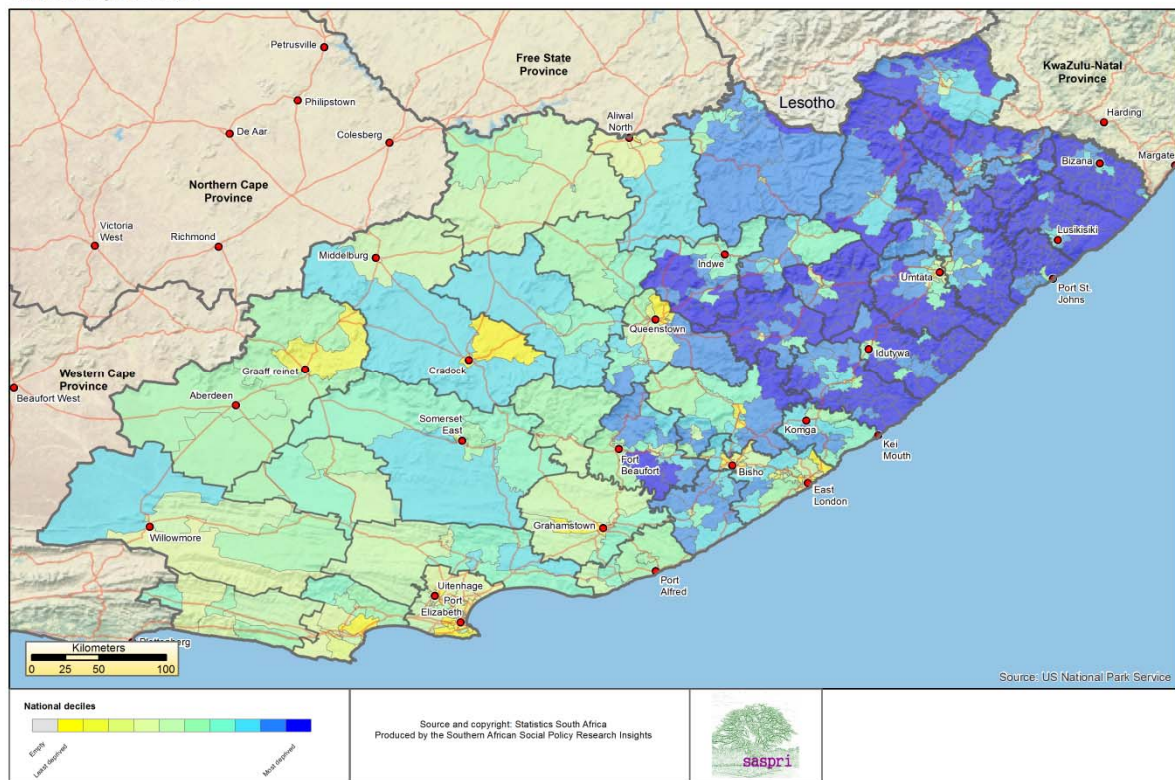| Ward Code	Ward Number	Local Municipality Code	Local Municipality Name	National SAIMD 2011 Rank (where 1=most deprived)	Eastern Cape SAIMD 2011 Rank (where 1=most deprived)
21504011	11	291	Port St Johns	1	1
21307005	5	284	Engcobo	4	2
21201017	17	270	Mbhashe	5	3
21507025	25	294	King Sabata Dalindyebo	6	4
24404003	3	298	Ntabankulu	7	5
21507027	27	294	King Sabata Dalindyebo	8	6
24403012	12	297	Mbizana	9	7
21503024	24	290	Ngquza Hill	10	8
21504018	18	291	Port St Johns	11	9
21307020	20	284	Engcobo	13	10

Table 9: The 10 least deprived wards in the Eastern Cape province (SAIMD 2011)

Ward Code	Ward Number.	Local Municipality Code	Local Municipality Name	National SAIMD 2011 Rank (where 1=most deprived)	Eastern Cape SAIMD 2011 Rank (where 1=most deprived)
29300001	1	299	Nelson Mandela Bay	4126	706
29300002	2	299	Nelson Mandela Bay	4135	707
29300051	51	299	Nelson Mandela Bay	4227	708
29300003	3	299	Nelson Mandela Bay	4233	709
21008003	3	268	Kouga	4250	710
29300039	39	299	Nelson Mandela Bay	4253	711
29300006	6	299	Nelson Mandela Bay	4256	712
29300009	9	299	Nelson Mandela Bay	4258	713
29300008	8	299	Nelson Mandela Bay	4260	714
29200004	4	260	Buffalo City	4267	715

The geography of deprivation in the Eastern Cape

The geography of deprivation across the Eastern Cape Province is now presented for the SAIMD 2011 in map form. The wards have been divided into *national* (i.e. South Africa wide) deciles of deprivation - ten equal groups. On the map, the thin dark grey lines depict the ward boundaries, the thicker black lines are the local municipality boundaries. The most deprived 10% of wards *nationally* are shaded deep blue and the least deprived 10% of wards are shaded bright yellow.

Ward-level SAIMD 2011
Eastern Cape Province

National deciles

Empty · Least deprived · Most deprived

Source and copyright: Statistics South Africa
Produced by the Southern African Social Policy Research Insights

saspri

As already attested by the previous data presented in this report, the above map shows that the former homelands have the largest share of the most deprived wards (shaded progressively darker shades of blue) in the Eastern Cape. There are also wards outside the former homelands, which, though less visible on the map, also experience severe deprivation, and this will be better demonstrated in the separate analyses of the domains of deprivation presented in the latter part of this report. These wards are less visible on the province wide map because it is easier to identify geographically larger, less densely populated wards than it is to identify geographically smaller but densely populated wards.
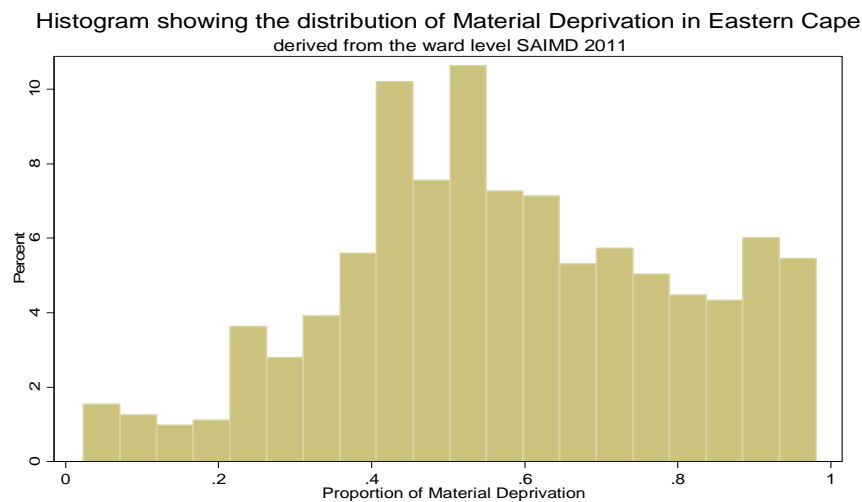
The Material Deprivation Domain
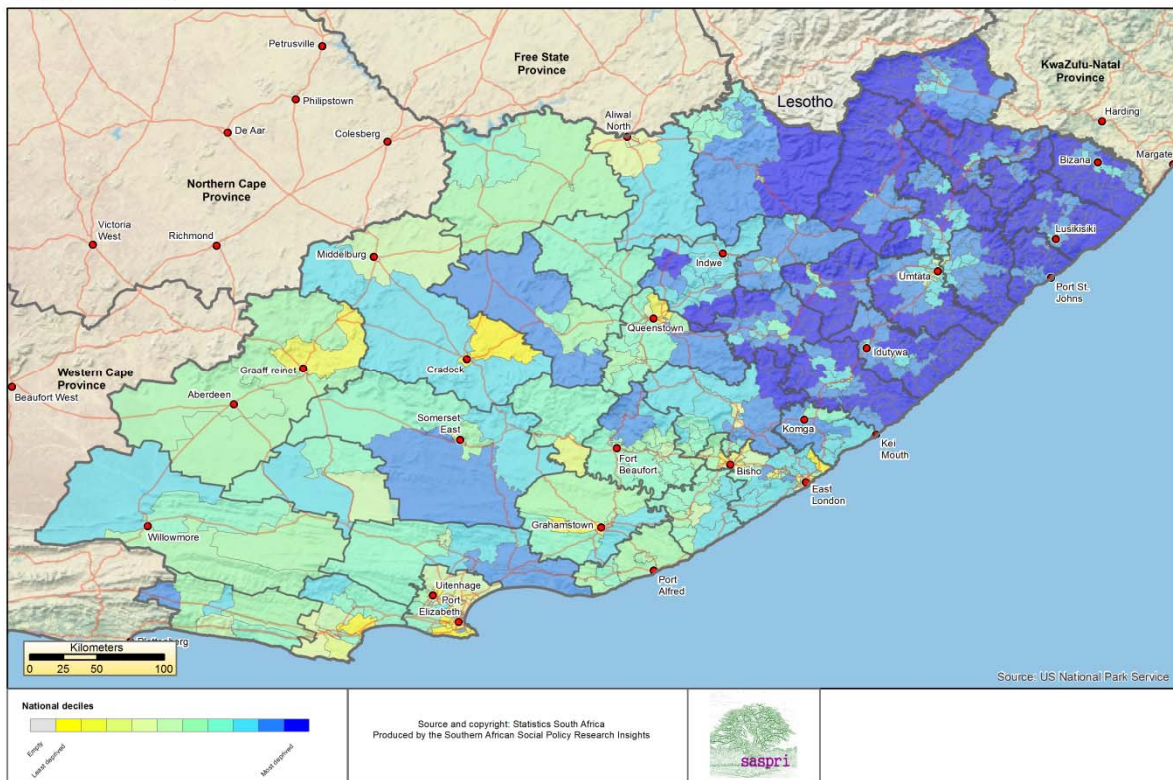
Once again, the map shows material deprivation to be mostly concentrated in rural former homelands of the Eastern Cape. Accordingly, the following histogram (**Figure7**) shows that material deprivation at ward level is not evenly distributed - there are low levels of deprivation in some wards, but many wards experience relatively high levels of material deprivation. As such the range for material deprivation is wide, with rates of deprivation from 2% to 98%.

Figure 7

Histogram showing the distribution of Material Deprivation in Eastern Cape
derived from the ward level SAIMD 2011

The following table shows the 10 most deprived wards in the Eastern Cape with regard to material deprivation. As can be seen most of them are distributed between three local municipalities all in the former Transkei, that is Mbizana (3), Ntabankulu (3) and Engcobo (2).

Table 10: The ten most materially deprived wards in Eastern Cape

Local Municipality	Ward Number	Ward Code	% Materially deprived	Rank of Deprivation within Eastern Cape where 1= most deprived
Mbizana	28	24403028	98.1%	1
Mbizana	11	24403011	97.7%	2
Ngquza Hill	3	21503003	97.4%	3
Ntabankulu	17	24404017	97.1%	4
Ntabankulu	3	24404003	97.0%	5
King Sabata Dalindyebo	25	21507025	96.9%	6
Engcobo	20	21307020	96.9%	7
Ntabankulu	1	24404001	96.8%	8
Engcobo	5	21307005	96.8%	9
Mbizana	12	24403012	96.7%	10

The Employment Deprivation Domain

Ward-level SAIMD 2011: Employment Deprivation Domain
Eastern Cape Province
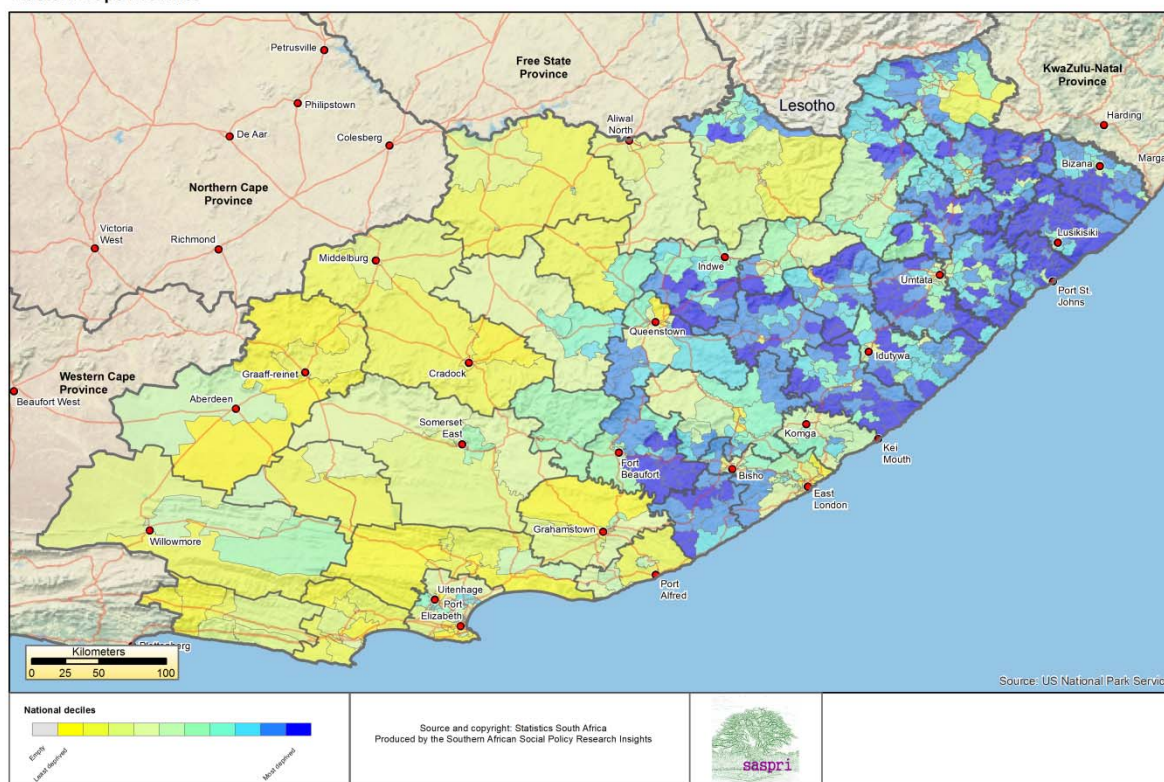
Similar to Material deprivation, the Employment deprivation map shows the most deprived wards mainly in the former homeland areas. Table 11 shows that of the 10 most Employment deprived wards in the Eastern Cape, three are in Port St Johns, two in Ngquza Hill, and two in King Sabata Dalindyebo local municipality. Ward level unemployment rates range from 2 % in a ward in Makana 86.2% in a ward in Port St Johns.

Table 11: The ten most employment deprived wards in the Eastern Cape

| Local Municipality Name	Ward Number	Ward Code	% Employment Deprived	Rank of Deprivation within Eastern Cape where 1=most deprived
Port St Johns	12	21504012	86.2%	1
Ngquza Hill	24	21503024	83.5%	2
King Sabata Dalindyebo	17	21507017	82.8%	3
Ngquza Hill	12	21503012	82.6%	4
Port St Johns	1	21504001	82.0%	5
Port St Johns	11	21504011	81.8%	6
Ngquza Hill	16	21503016	81.6%	7
Nkonkobe	13	21207013	81.2%	8
King Sabata Dalindyebo	16	21507016	81.2%	9
Umzimvubu	2	24402002	80.9%	10

The Education Deprivation Domain

Ward-level SAIMD 2011: Education Deprivation Domain
Eastern Cape Province
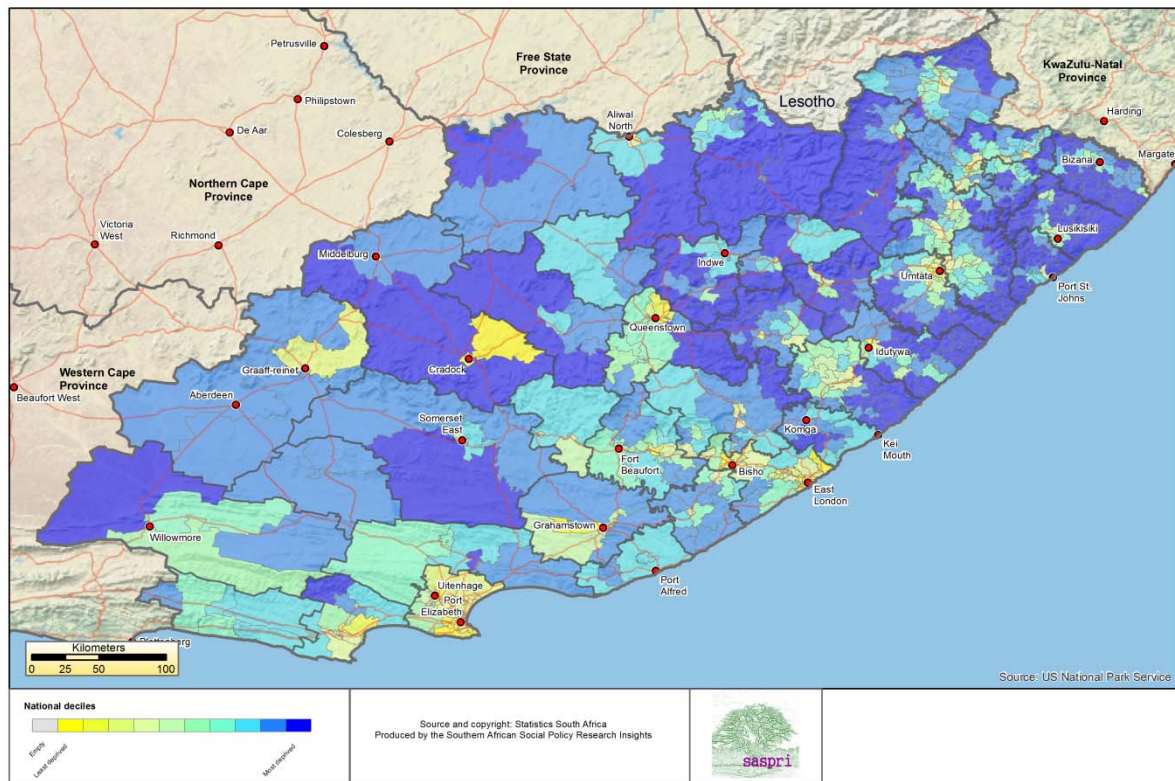
In contrast to the Material Deprivation Domain and the Employment Deprivation Domain, education deprivation is more evenly spread across the Eastern Cape. This is clear from the map above. This shows wards in the most deprived deciles are in rural areas both within and outside of the former homelands . Figure 8 below shows the distribution of education deprivation in the Eastern Cape.

Figure 8

Histogram showing the distribution of Education Deprivation in Eastern Cape
derived from the ward level SAIMD 2011
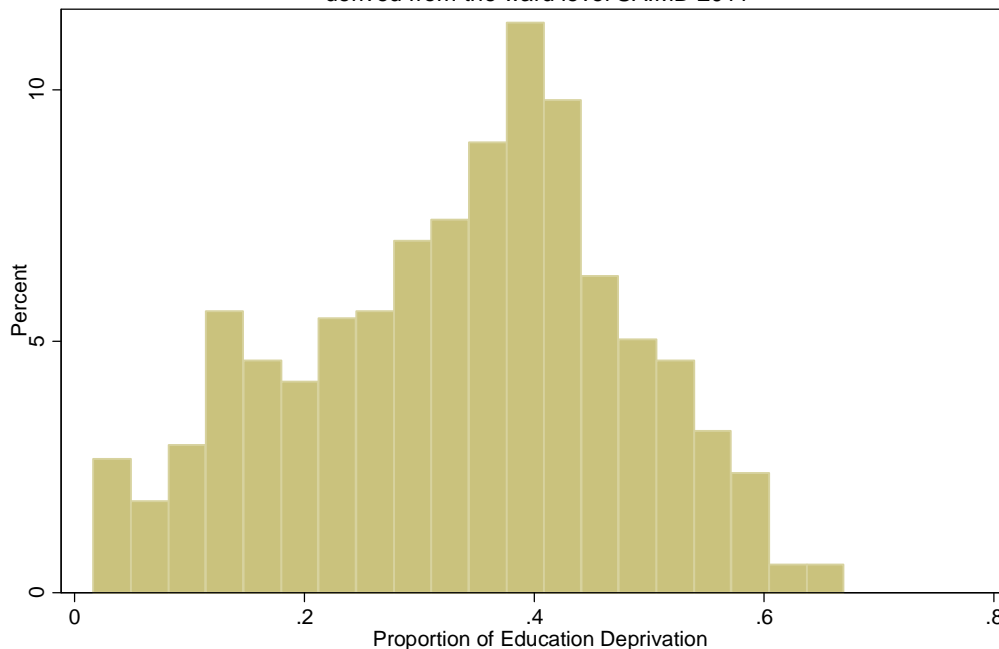
However, less deprived areas, untouched by the former homelands legacy, continue to experience the lowest levels of education deprivation, with seven out of the 10 least deprived wards on the Education Deprivation Domain situated in the Nelson Mandela Bay Metro area. All of the least deprived 10 wards have rates of Education deprivation of less than 3%. By contrast as the table below shows, the most deprived 10 wards have education deprivation rates above 60% and are all in the former Transkei.

Table 12: The ten most education deprived wards in the Eastern Cape

Local Municipality Name	Ward Number	Ward Code	% Education Deprivation	Rank of Deprivation within the Eastern Cape
Port St Johns	17	21504017	67.0	1
Engcobo	20	21307020	65.7	2
Ntabankulu	1	24404001	65.3	3
Ngquza Hill	1	21503001	64.9	4
Intsika Yethu	19	21305019	62.3	5
Mbhashe	20	21201020	61.8	6
Mbhashe	11	21201011	61.1	7
Mbhashe	15	21201015	61.0	8
Ngquza Hill	2	21503002	60.4	9
Port St Johns	11	21504011	60.3	10

The Living Environment Deprivation Domain

Ward-level SAIMD 2011: Living Environment Deprivation
Eastern Cape Province
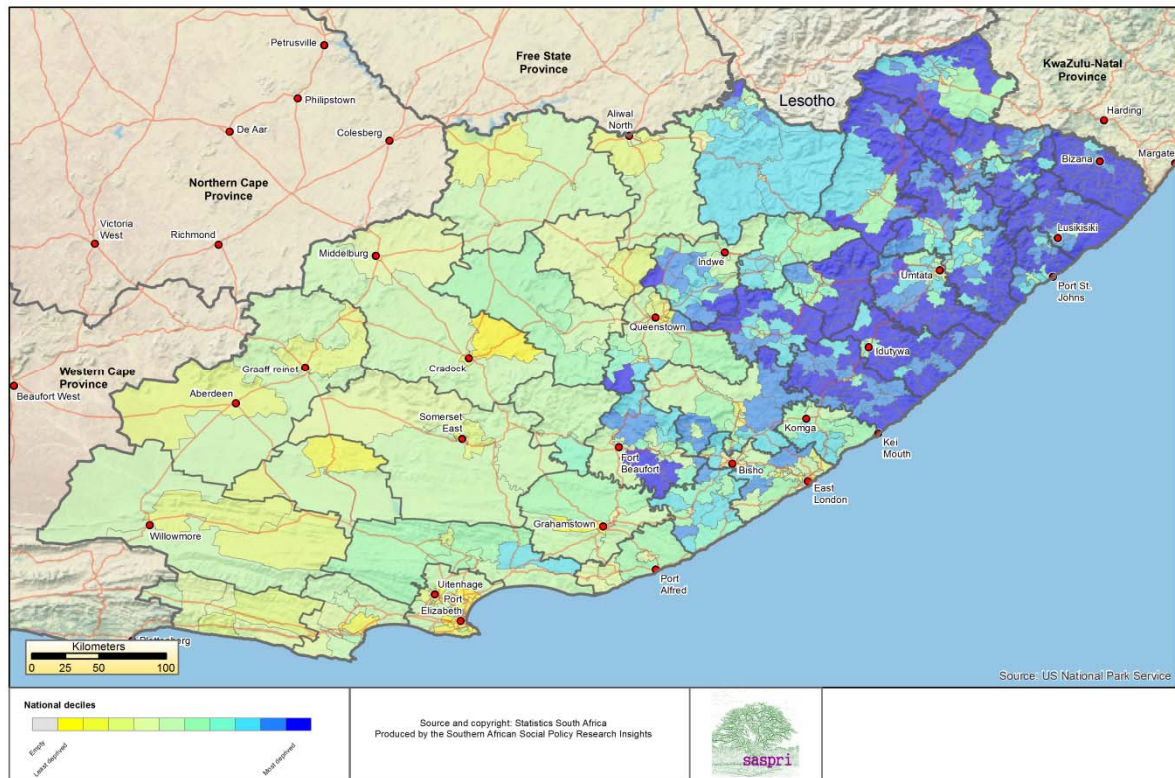
As the map above shows, wards in the former homeland area, especially the former Transkei fare worst on the Living Environment Domain. Across the province 27% (196) of its wards are in the most deprived decile nationally (Table 12).

Table 12: Number of wards in the most deprived decile nationally in the Living Environment domain, by local municipality

Local Municipality	Number of wards in the most deprived decile of the Living Environment Domain nationally
Mbizana	25
Mbhashe	22
Ngquza Hill	19
Mnquma	15
Nyandeni	15
Engcobo	14
King Sabata Dalindyebo	11
Matatiele	11
Ntabankulu	11
Elundini	10
Intsika Yethu	9
Port St Johns	9
Mhlontlo	9
Umzimvubu	9
Nkonkobe	2
Emalahleni	2
Amahlathi	1
Lukanji	1
Senqu	1

The histogram below (Figure 9) shows that, while there are some wards with very low levels of Living Environment deprivation, the distribution of Living Environment deprivation is skewed towards higher rates of deprivation.

Figure 9

Histogram showing the distribution of Living Environment Deprivation in Eastern Cape
derived from the ward level SAIMD 2011
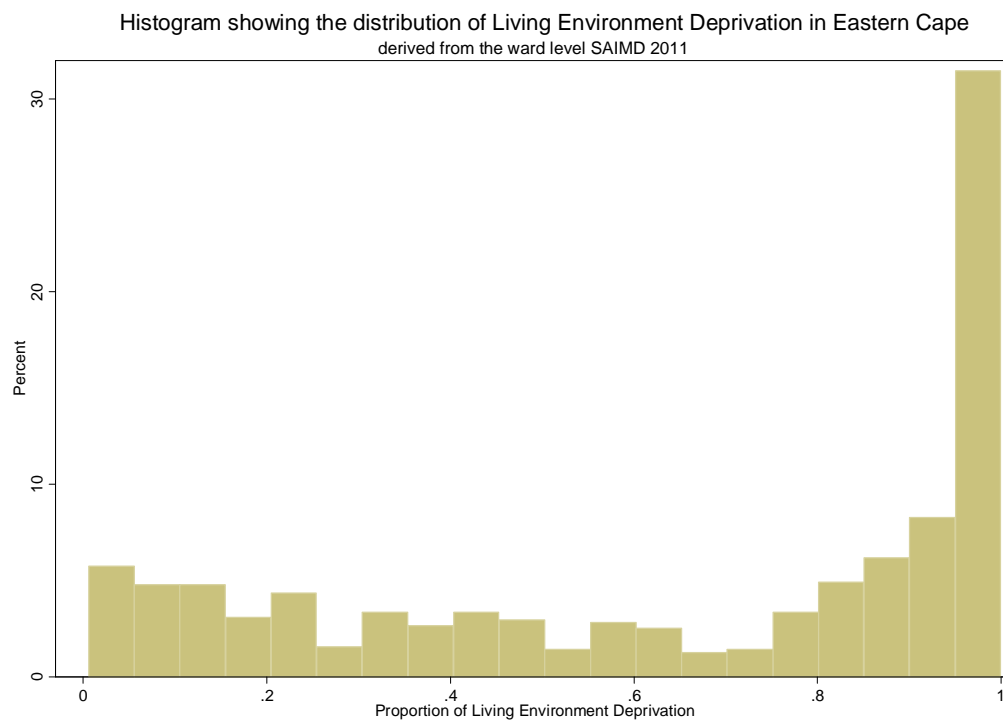
The most deprived 10 wards in the province all have rates of living environment deprivation of 100% and all of them are found in the former Transkei homeland. This is illustrated in Table 13 below. On the other hand, the 10 least deprived wards in the province all have rates of Living Environment deprivation of less than 2.5%. This domain therefore illustrates very high levels of inequality as regards service delivery in the Eastern Cape.

Table 13: The ten most living environment deprived wards in the Eastern Cape

Local Municipality name	Ward Number	Ward Code	% Living Environment Deprived	Rank of Deprivation with the Eastern Cape where 1=most deprived[6]
Mbizana	25	24403025	100.0%	1=
Port St Johns	11	21504011	100.0%	1=
Port St Johns	18	21504018	100.0%	1=
Mbizana	27	24403027	100.0%	1=
Ntabankulu	2	24404002	100.0%	1=
Elundini	12	21401012	100.0%	1=
Engcobo	20	21307020	100.0%	1=
Engcobo	5	21307005	100.0%	1=
Mbizana	12	24403012	100.0%	1=
Port St Johns	16	21504016	100.0%	1=

Former Homeland Analysis

It has been a recurrent theme in this report that even in 2011 deprivation in the Eastern Cape continues to be concentrated in the former homeland areas. This section of the report looks specifically at the former homelands and sets the story in the context of 'rest of South Africa'. First, a map of the province showing the former homeland areas shaded in pink is presented.

---

[6] In fact 137 wards in the Eastern Cape have rates of Living Environment deprivation of 99% or greater and all except 1 are in the former Transkei homeland (the other is in the former Ciskei homeland)

Municipalities with extents of the former Homelands
Eastern Cape Province

Legend
Former Homelands
2011 Municipalities

Source and copyright: Statistics South Africa
Produced by the Southern African Social Policy Research Insights

The following table shows deprivation rates for the four domains in each of the former homelands as well as for 'all former homelands', and 'the rest of South Africa' (i.e. all areas that are not former homelands), and 'all of South Africa' (which includes the former homelands).

**Table 14: Deprivation in the former homelands in 2011**

	Material Deprivation %	Employment Deprivation %	Education Deprivation %	Living Environment Deprivation %
Former Bophuthatswana	38.1	46.8	26.0	67.0
Former Ciskei	41.5	56.2	24.3	50.5
Former Gazankulu	36.9	58.3	28.9	77.6
Former KaNgwane	33.7	47.2	29.1	71.4
Former KwaNdebele	29.0	45.9	27.6	65.0
Former KwaZulu	48.7	54.5	27.0	67.4
Former Lebowa	38.7	57.2	23.3	81.9
Former Qwa Qwa	36.8	56.0	22.8	61.4
Former Transkei	69.0	58.4	37.2	87.8
Former Venda	36.9	54.5	24.0	77.0
All former homelands	46.4	53.8	28.0	73.7
Rest of South Africa	**33.0**	**30.1**	**17.9**	**27.6**
All South Africa	37.1	36.0	20.9	43.8

49

The two former homelands which are contained mainly within the Eastern Cape province are shaded green.

This analysis shows that the Eastern Cape's former homelands are some of the most deprived in South Africa, with the former Transkei having the highest rates of deprivation across the four domains. In particular, the former Transkei scores very highly for the Living Environment Domain, with 87.8% of the population experiencing this type of deprivation. .

When analysing the 'rest of South Africa' separately from the former homelands, deprivation rates drop dramatically, with only 28% deprived in the Living Environment Domain, 18% in the Education Deprivation Domain, 30% in the Employment Deprivation Domain and 33% in Material Deprivation Domain. Former homelands, therefore, continue to carry most of the burden of multiple deprivation in South Africa.

South Africa Index of Multiple Deprivation 2011 at Ward level showing extents of the former homelands
Eastern Cape Province (National Deciles)
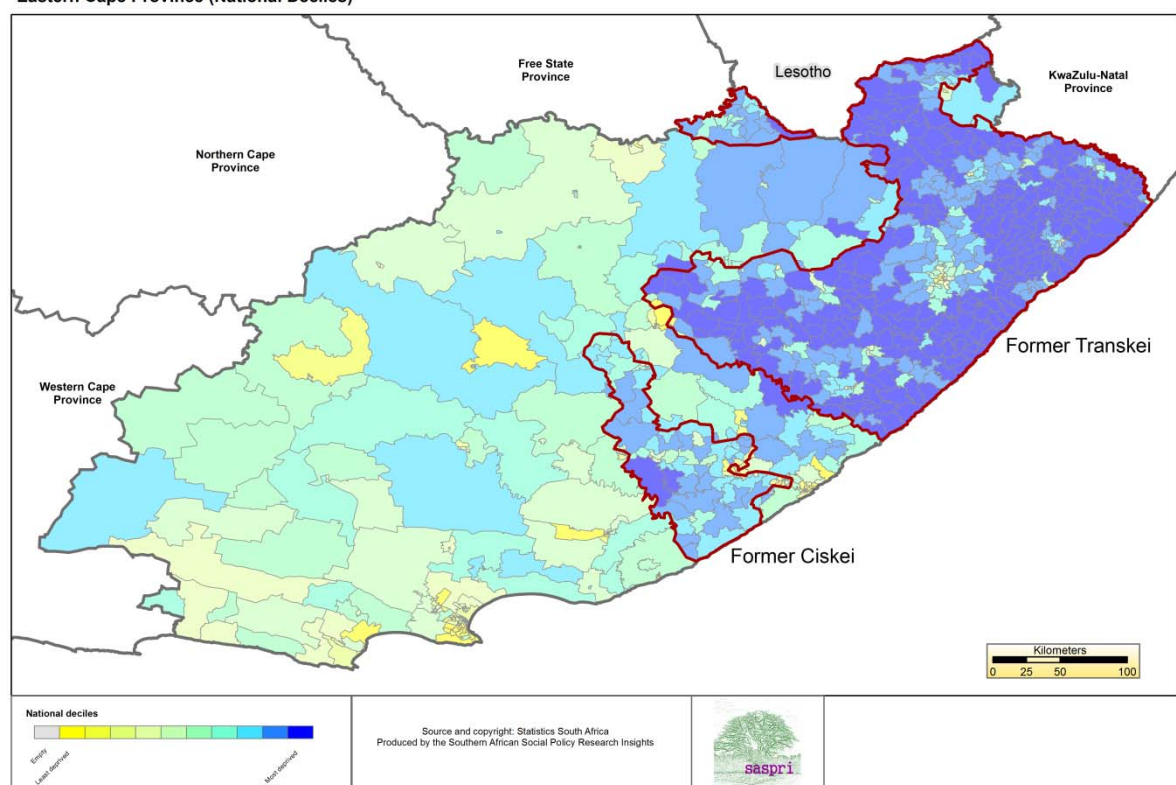
This map shows national deciles of the SAIMD 2011 in the Eastern Cape, with the boundaries of the former Ciskei and former Transkei overlaid in red. The spatial echoes of the former homelands were evident at the time of the 2001 Census (see Noble and Wright, 2013) and, in terms of the location of highly deprived areas, are still very evident in 2011.

8.   Income poverty at ward level

Background

As has been indicated in Section 3, deprivation is conceptualised as a lack of material possessions, social and human capital, decent housing and associated services. Poverty on the other hand can be regarded as the lack of resources to obtain items or services that people are deprived of. So, in addition to examining multiple deprivation at small area level it is also useful to look at income poverty.

Despite attempts by government to introduce an official income poverty line, no such poverty line has so far been adopted. Indeed, arguments have been made that a realistic poverty line must take into account the resources required for an 'acceptable standard of living'. Such a poverty line would require consideration of a consensual measure of poverty (e.g. Wright et al., 2010) as well as detailed further work using a budget standards approach.

A number of income poverty lines have been used by analysts in South Africa over the years. A common one which has been used extensively by the NIDS team at the University of Cape Town is based on work undertaken by Hoogeveen and Ozler (2006). They proposed two poverty lines: a 'lower bound' poverty line and an 'upper bound' poverty line. These poverty lines are utilised for the analyses in this section. Inflating Hoogeveen and Ozler's lines to 2011 prices using the published Consumer Price Index (CPI) yields two per capita poverty lines - a lower bound poverty line of R604 per capita per month and an upper bound poverty line of R1,113 per capita per month.

Methodology

Almost all analyses of income poverty are undertaken using survey data to produce national/provincial measures of poverty or, occasionally, to produce measures of poverty relating to particular subgroups such as population groups or gender. Spatial analysis below province level is rare[7] and is usually limited to distinctions between particular area types such as urban/rural.

The poverty measures used are usually expressed in terms of the headcount ratio (P0) which can be thought of as the proportion of the population in poverty. In addition poverty gap measures (p1 and p2) are usually given. In this analysis the intention is to produce the equivalent of a poverty headcount ratio at ward level. Put another way, the resultant

---

[7] For a small area approach in South Africa based on modelled survey data see Alderman et al., (2003).

measure will describe the proportion of the population in a ward who are below either the lower bound or the upper bound poverty line.

In order to produce a ward level measure it is necessary to derive information from the 2011 Census as no survey source is reliable for such small areas. Achieving this measure using census data obtained using superstar requires a number of complex data manipulations. In brief, the banded household income (which is itself a derived variable being the aggregate of individual banded income) needs to be translated into point income and a per capita income created. This can then be compared to each of the poverty lines and proportions of individuals falling below the lines for each ward computed. Necessarily there is some loss of information when the banded income is translated into point income. To do this the same procedure that Stats SA used when creating the banded household income from banded individual income is utilised, so the logarithmic mean of the band was employed to specify the particular point income value for the band.

Results

Using this methodology, the poverty headcount ratios for South Africa as a whole in 2011 are 0.56 for the lower bound line, and 0.65 for the upper bound line. It is notoriously difficult to compare poverty rates from different studies in South Africa as they typically use different poverty lines, different data sources and, in some cases, consumption rather than income. However these national figures compare reasonably well with the figures generated from the first wave of NIDS (see Argent *et al*., 2009 and Leibbrandt *et al*., 2010).

In order to contextualise the Eastern Cape results the following table presents the poverty rates calculated using the same methodology for the nine provinces.

Table 15: Provincial Poverty Rates derived from Census 2011 using two poverty lines derived from Hoogeveen and Ozler (2006)

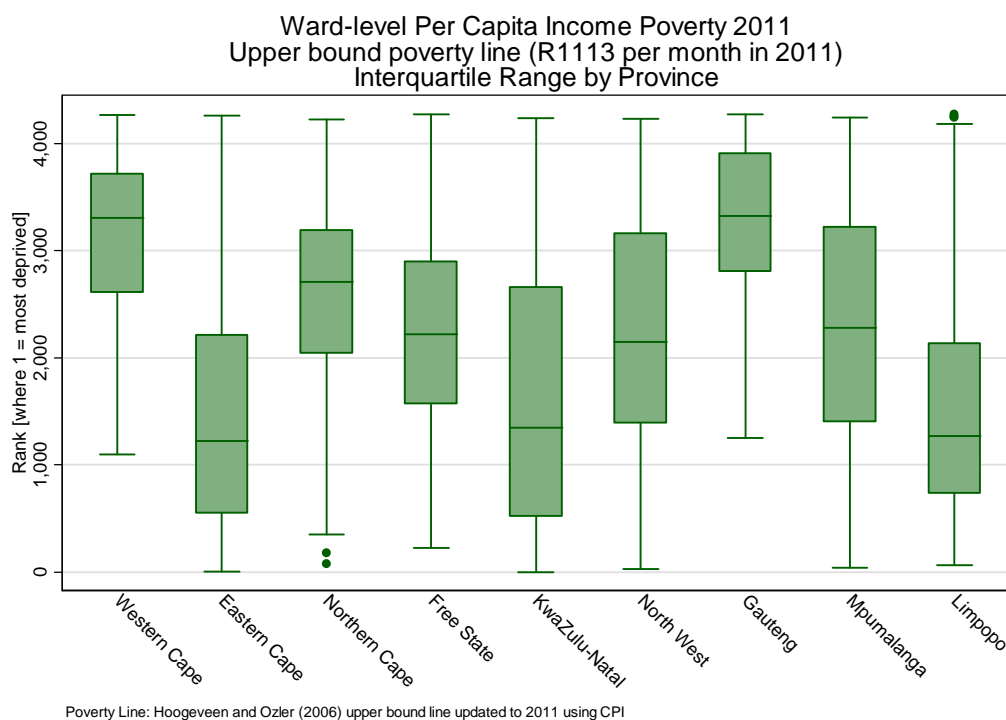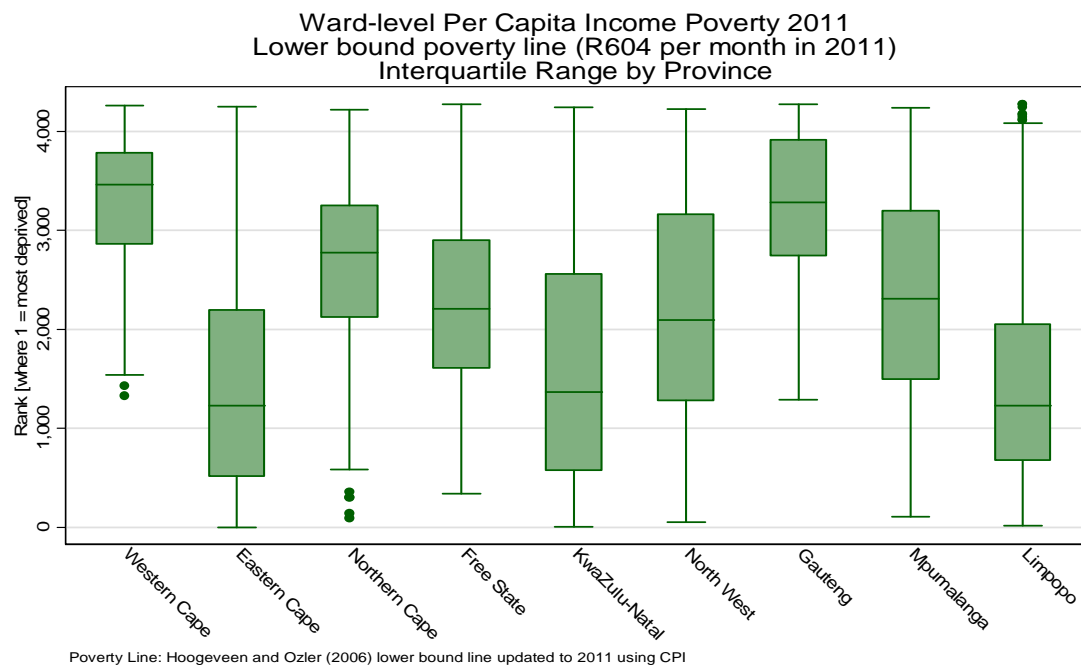| Province	Lower Bound (R604)	Upper bound (R1113)
Western Cape	40.1	51.6
Eastern Cape	69.0	76.9
Northern Cape	54.7	66.0
Free State	58.9	68.9
KwaZulu-Natal	62.7	71.1
North West	58.7	67.7
Gauteng	40.7	49.0
Mpumalanga	60.2	69.6
Limpopo	70.3	78.2
All South Africa	55.7	64.6

From this table it is clear that income poverty in the Eastern Cape is very high, second only to Limpopo at the national level, to which it is a very close second, and well above the national rates.

As with the SAIMD 2011, it is possible to present the ward level income measures at higher spatial levels in order to set income poverty within the Eastern Cape in a wider context. The following two charts are box plots showing the interquartile range of the ward ranks for the two poverty measures by province. These charts should be interpreted in the same way as those earlier presented for the SAIMD.

These two charts present a very similar picture: along with Limpopo and KwaZulu-Natal, the interquartile range for the Eastern Cape shows that its wards fall towards that part of the distribution with the highest rates of income poverty.

When taking the lower bound line, 454 of the Eastern Cape's 715 wards (63.4%) have income poverty rates of 70% or more.

Figures 10 and 11

Ward-level Per Capita Income Poverty 2011
Lower bound poverty line (R604 per month in 2011)
Interquartile Range by Province

Poverty Line: Hoogeveen and Ozler (2006) lower bound line updated to 2011 using CPI

Ward-level Per Capita Income Poverty 2011
Upper bound poverty line (R1113 per month in 2011)
Interquartile Range by Province

Poverty Line: Hoogeveen and Ozler (2006) upper bound line updated to 2011 using CPI

The following maps show the distribution of income poverty across the Eastern Cape. These maps use national deciles and as with previous maps, the wards with the highest rates of poverty are shaded deep blue whilst the wards with the lowest rates of poverty are shaded yellow.

Ward level income poverty rates 2011 (poverty line R604 per capita pcm)
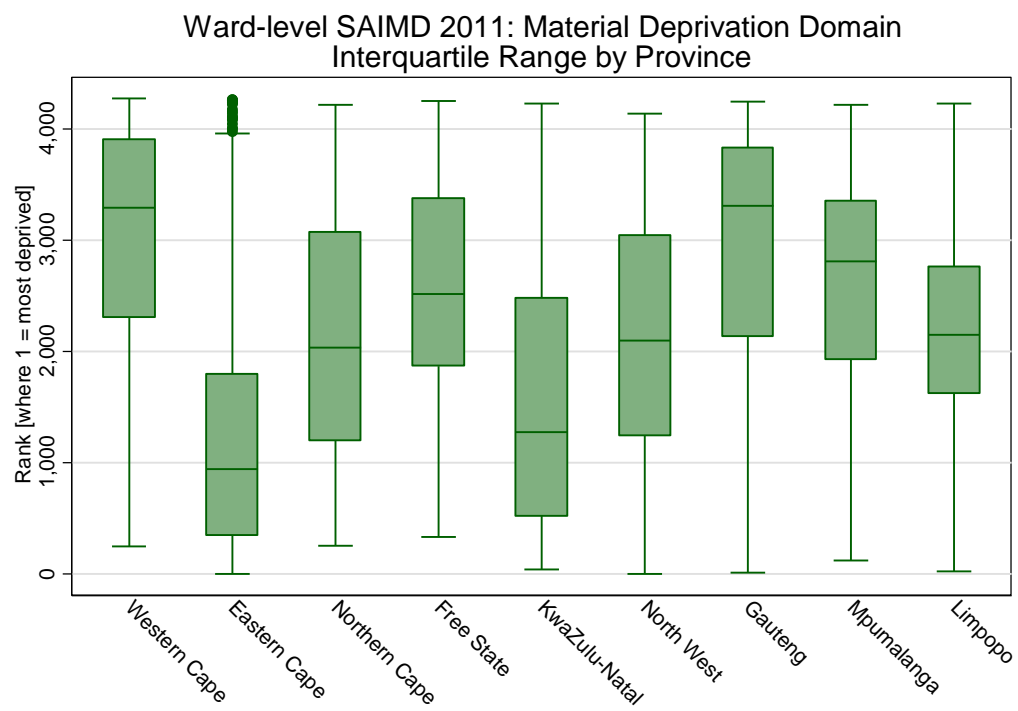**Eastern Cape Province**
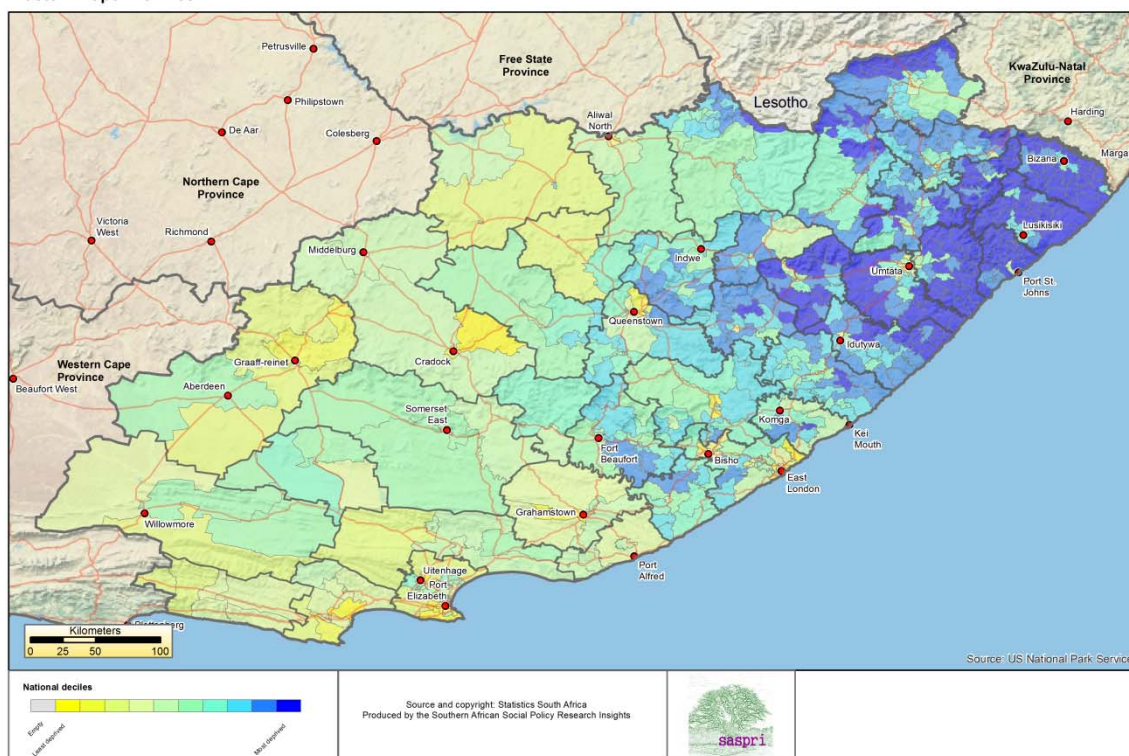
Ward level income poverty rates 2011 (poverty line R1113 per capita pcm)
Eastern Cape Province
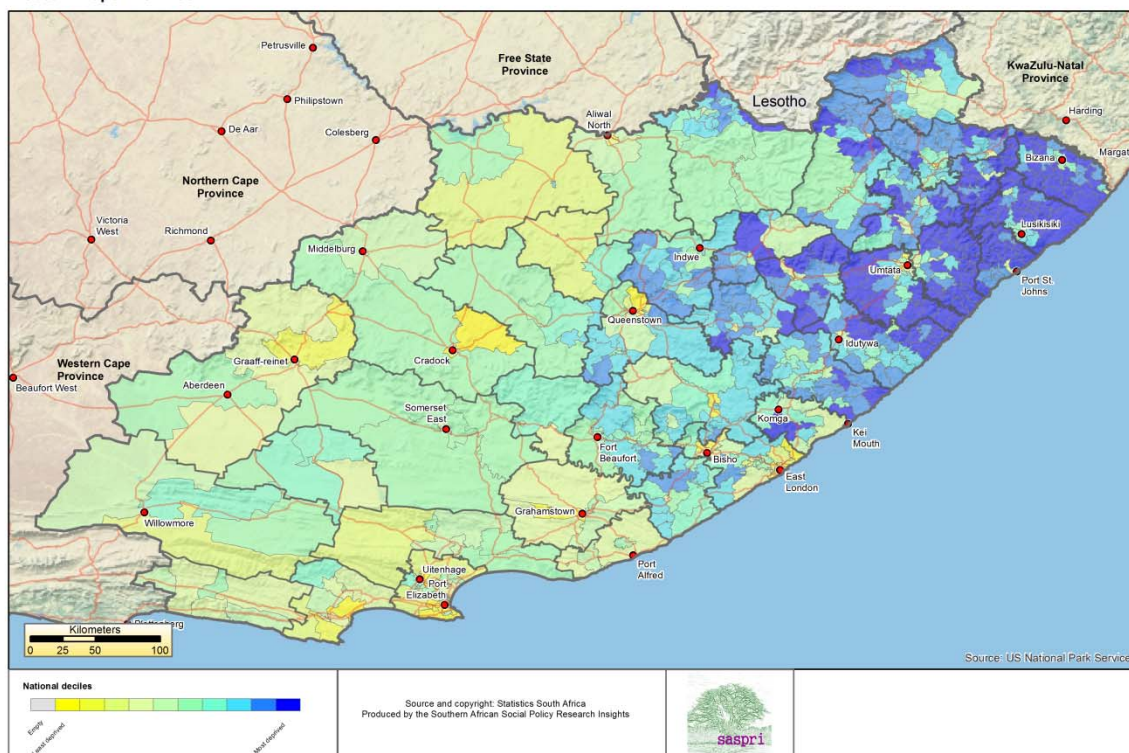
The two maps above demonstrate that the areas with the highest levels of income poverty in the Eastern Cape are mainly within the former homelands areas. Furthermore, the patterns of income poverty are very similar to those observed in the overall SAIMD 2011.

Appendix 1: Provincial distributions of component domains of the ward level SAIMD 2011

Figure A1

Ward-level SAIMD 2011: Material Deprivation Domain
Interquartile Range by Province

Figures A2 and A3

Ward-level SAIMD 2011: Employment Deprivation Domain
Interquartile Range by Province

Ward-level SAIMD 2011: Education Deprivation Domain
Interquartile Range by Province

Figure A4

Ward-level SAIMD 2011: Living Environment Deprivation Domain
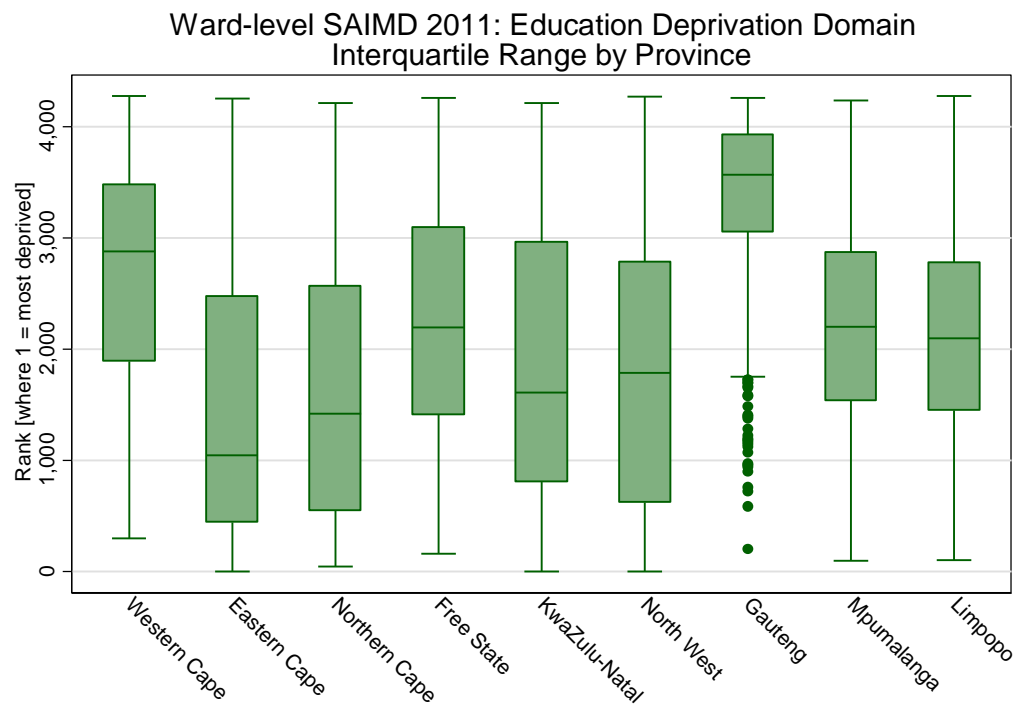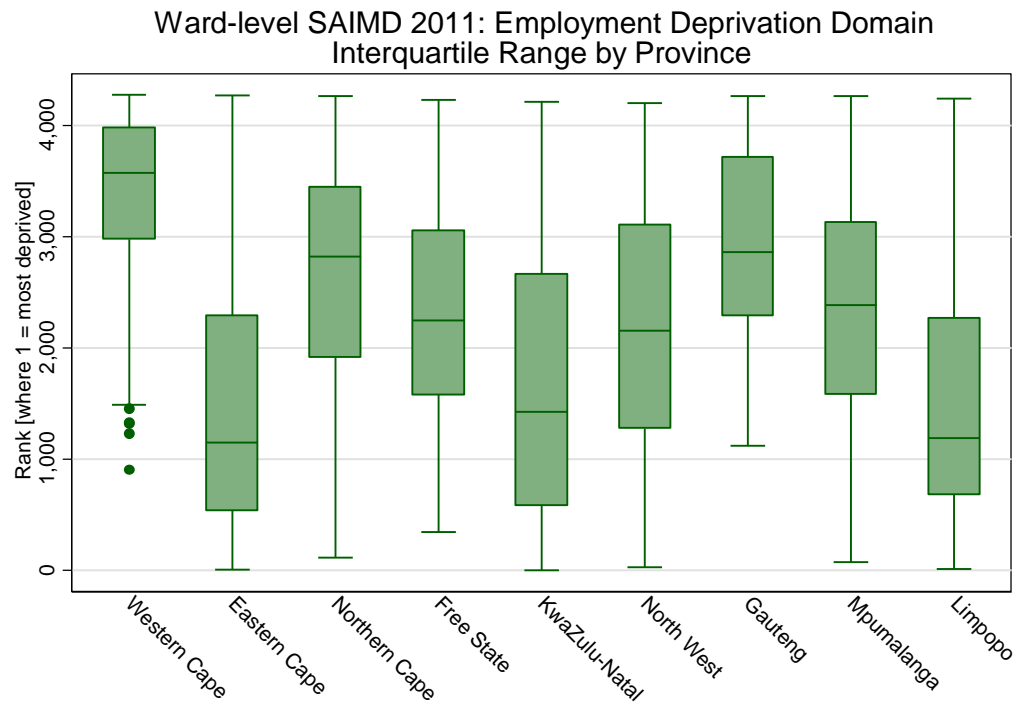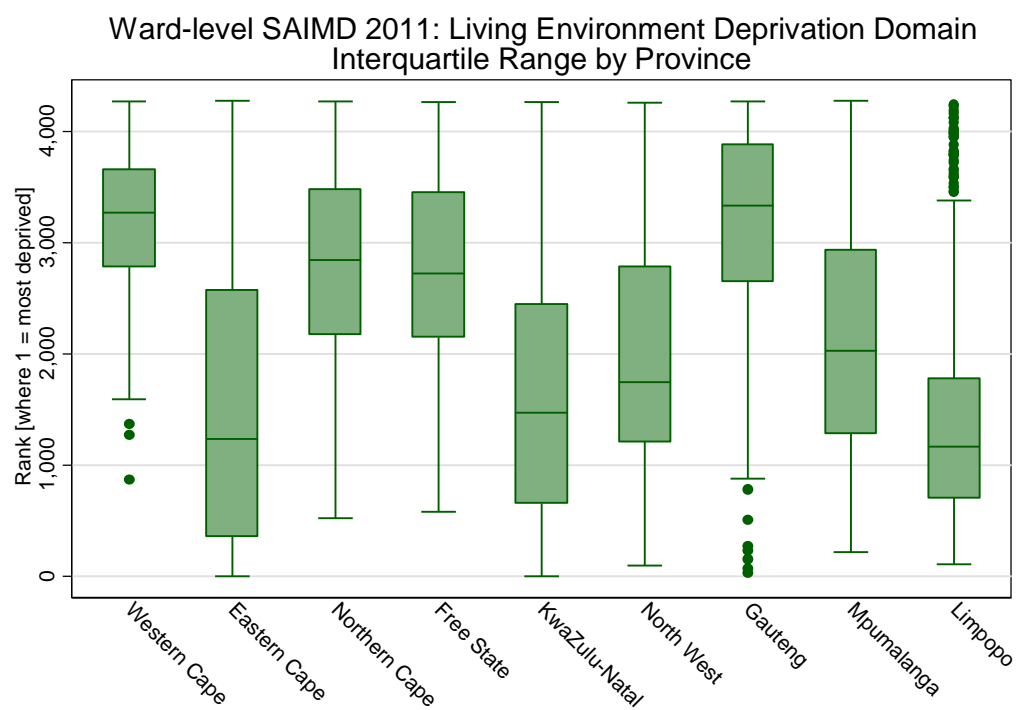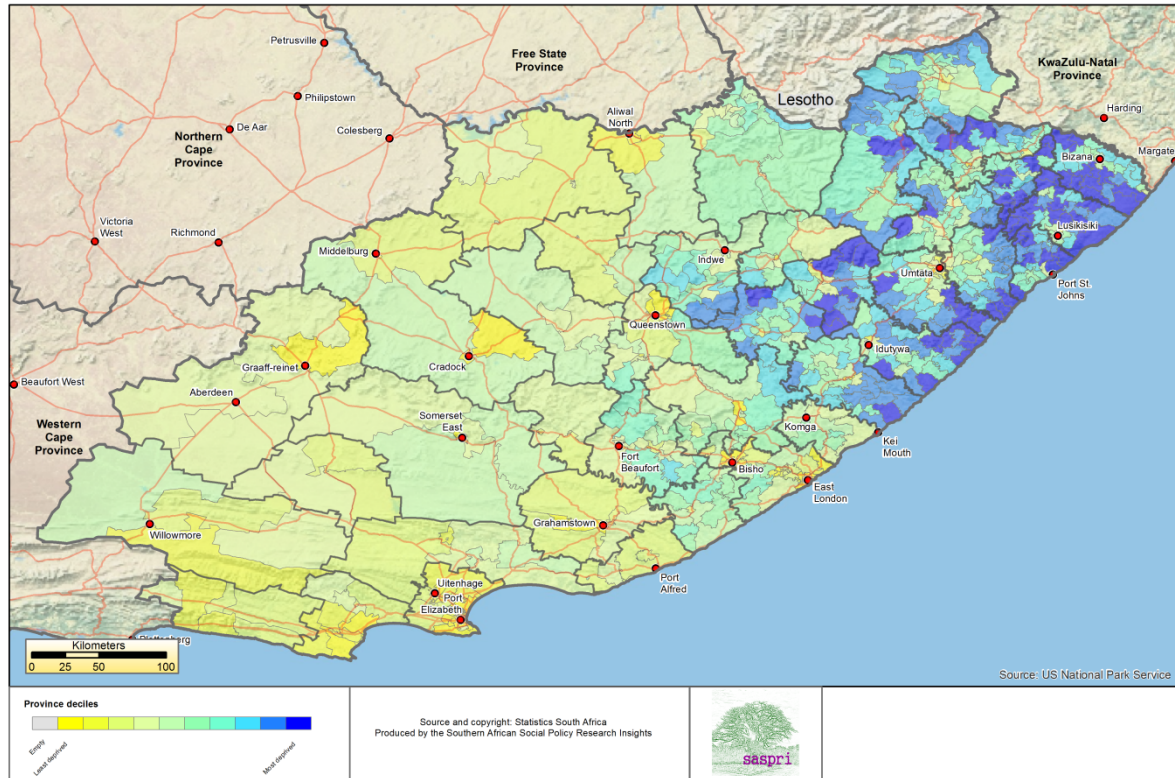### Interquartile Range by Province

Appendix 2: Maps of the ward level SAIMD 2011 and component domains (Eastern Cape Deciles)
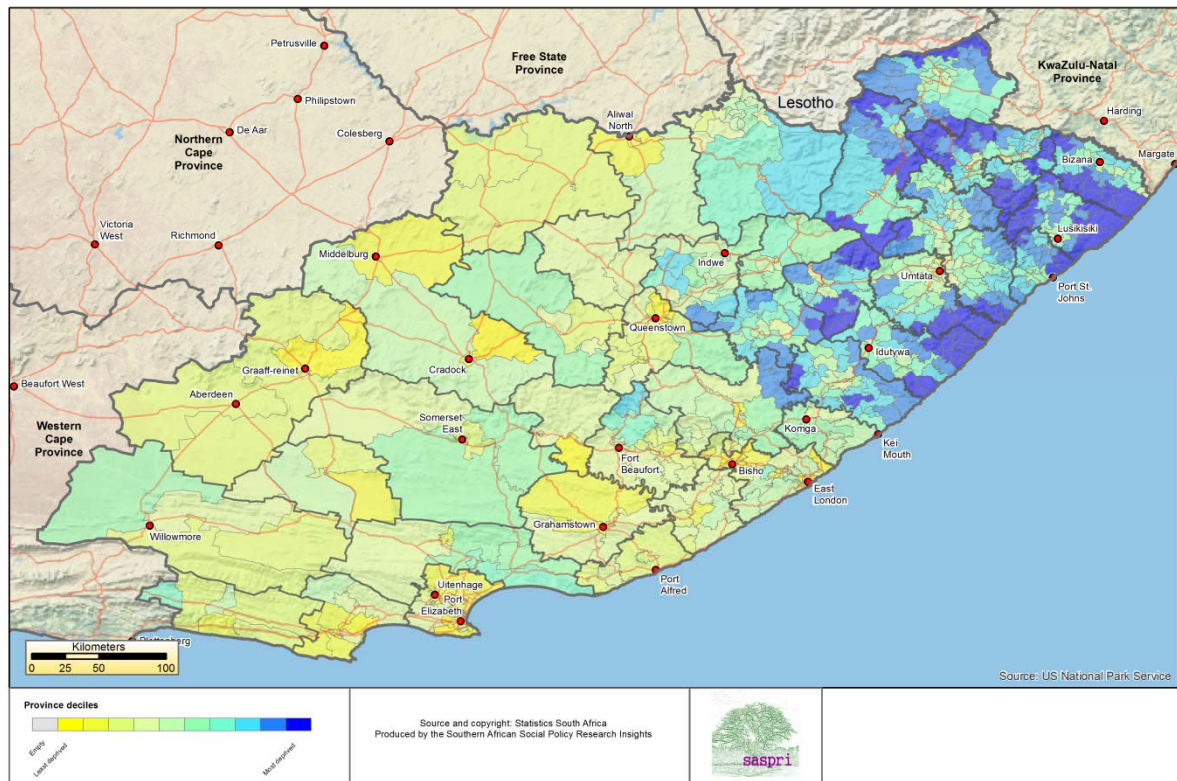
Overall SAIMD

Ward-level SAIMD 2011
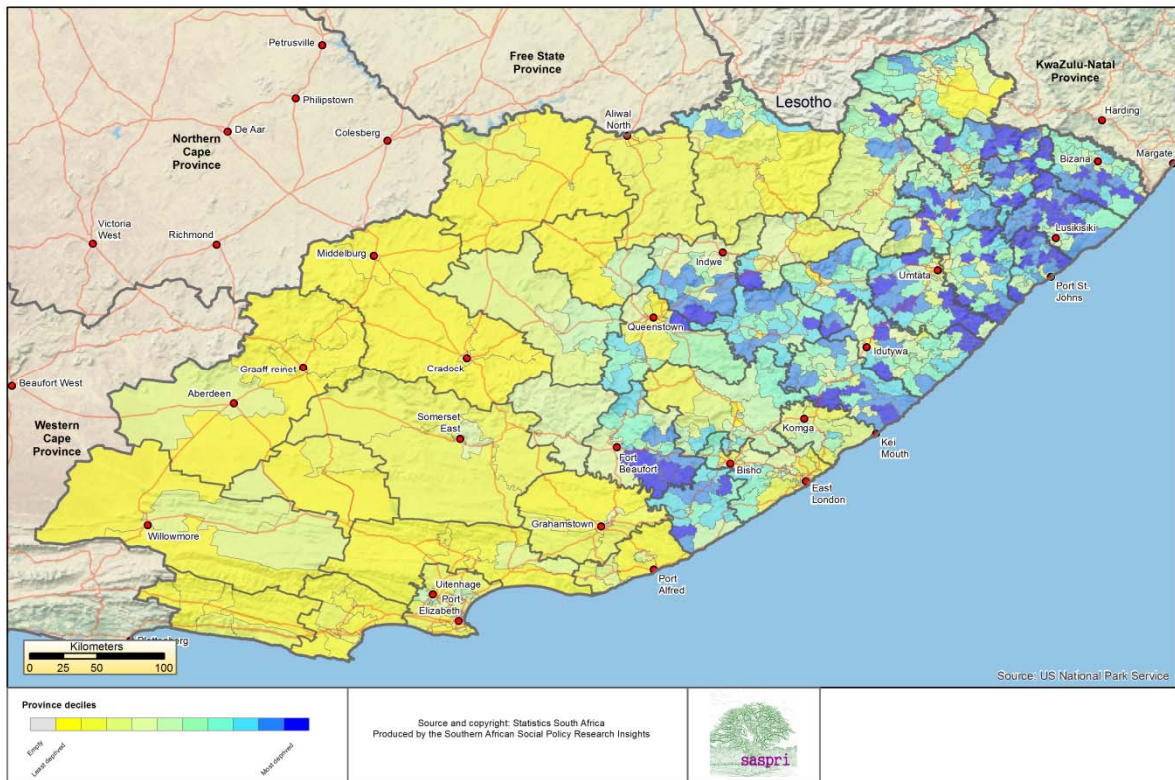Eastern Cape Province (Eastern Cape Deciles)

Material Deprivation Domain

Ward-level SAIMD 2011: Material Deprivation Domain
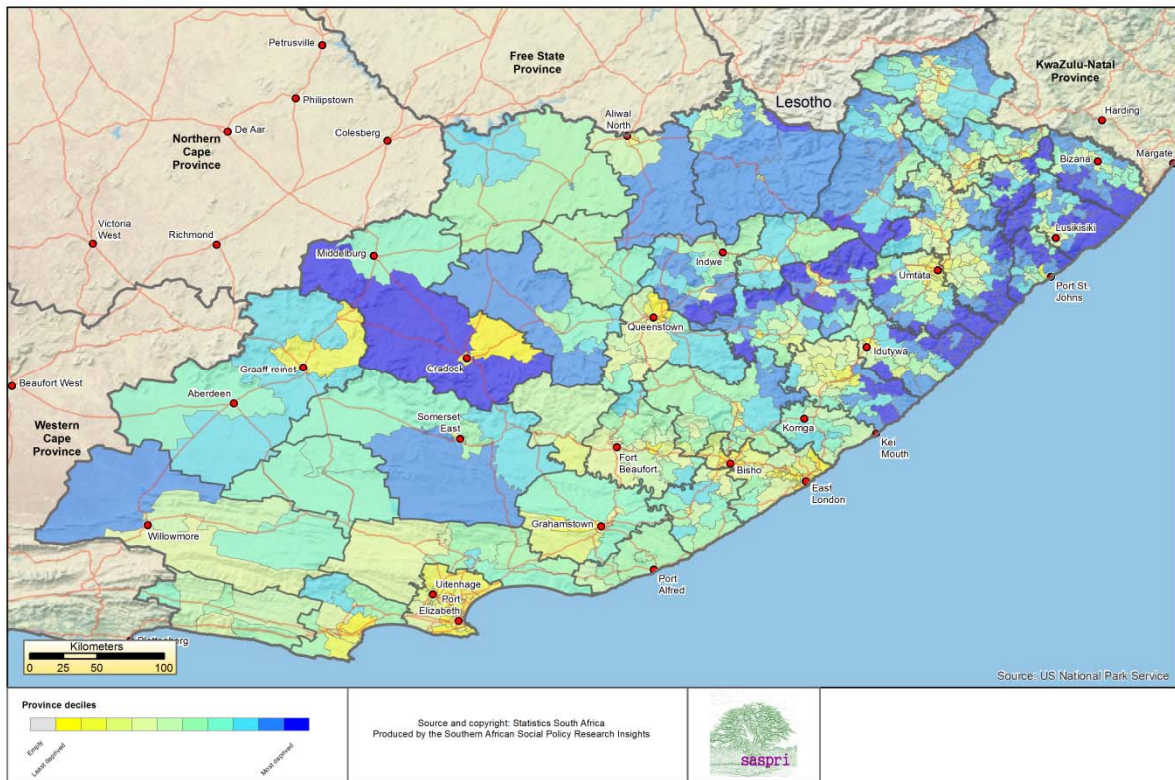**Eastern Cape Province (Eastern Cape Deciles)**

Employment Deprivation Domain

Ward-level SAIMD 2011: Employment Deprivation Domain
Eastern Cape Province (Eastern Cape Deciles)

Education Deprivation Domain

Ward-level SAIMD 2011: Education Deprivation Domain
Eastern Cape Province (Eastern Cape Deciles)

Living Environment Deprivation Domain

Ward-level SAIMD 2011: Living Environment Deprivation
Eastern Cape Province (Eastern Cape Deciles)

Province deciles

Least deprived — Most deprived

Source and copyright: Statistics South Africa
Produced by the Southern African Social Policy Research Insights

saspri
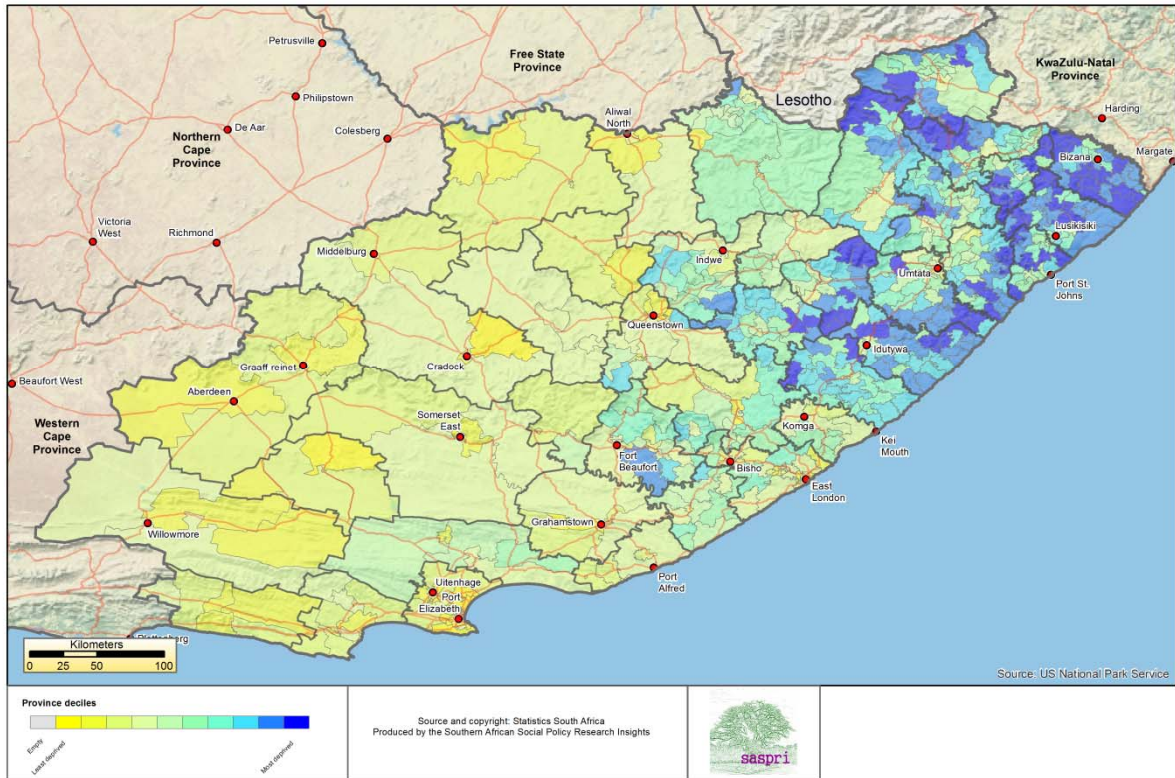
References

Alderman, H., Babita, M., Demombynes, G., Makhatatha, N. and Ozler, B. (2003) 'How low can you go? Combining census and survey data for mapping poverty in South Africa', *Journal of African Economies*, 11(2): 169-200.

Argent, J., Finn, A., Leibbrandt, M. and Woolard, I. (2009) *Poverty: Analysis of the NIDS Wave 1 Dataset, Discussion Paper no. 13,* Cape Town: SALDRU, University of Cape Town.

Barnes, H., Noble, M., Wright, G. and Dawes, A. (2009) 'A Geographical Profile of Child Deprivation in South Africa', *Child Indicators Research,* 2(2):181-199*.*

Barnes, H., Wright, G., Noble, M. and Dawes, A. (2007) *The South African Index of Multiple Deprivation for Children 2001,* Cape Town: Human Sciences Research Council Press.

Bhorat, H., Poswell, L. and Naidoo, P. (2004) *Dimensions of Poverty in Post-Apartheid South Africa*, Cape Town: DPRU, University of Cape Town.

Christopher, A. J. (1994) *The atlas of apartheid*. London: Routledge.

Hoogeveen, J. and Özler, B. (2006) 'Poverty and inequality in post-apartheid South Africa', in Bhorat and Kanbur (eds.), *Poverty and Policy in Post-Apartheid South Africa,* Pretoria: Human Sciences Research Council Press, pp. 59-94.

Kleinman, M. (1999) 'There goes the neighbourhood: area policies and social exclusion', *New Economy*, 6: 188-192.

Leibbrandt, M., Woolard, I., Finn, A., and Argent, J. (2010) *Trends in South African income distribution and poverty since the fall of apartheid*. OECD Social, Employment and Migration Working Paper No. 101, Paris: OECD Directorate for Employment, Labour and Social Affairs.

Lloyd, N. and Leibbrandt, M. (2013) *New evidence on subjective wellbeing and the definition of unemployment in South Africa*. A Southern Africa Labour and Development Research Unit Working Paper No. 94, Cape Town: SALDRU, University of Cape Town.

Noble, M., Smith, G.A.N., Penhale, B., Wright, G., Dibben, C., Owen, T. and Lloyd, M. (2000) Measuring Multiple Deprivation at the Small Area Level: The Indices of Deprivation 2000, London: Department of the Environment, Transport and the Regions.

Noble, M., Babita, M., Barnes, H., Dibben, C., Magasela, W., Noble, S., Ntshongwana, P., Phillips, H., Rama, S., Roberts, B., Wright, G. and Zungu, S. (2006a) *The Provincial Indices of Multiple Deprivation for South Africa 2001*, Oxford: University of Oxford, UK.

Noble, M., Babita, M., Barnes, H., Dibben, C., Magasela, W., Noble, S., Ntshongwana, P., Phillips, H., Rama, S., Roberts, B., Wright, G. and Zungu, S. (2006b) *The Provincial Indices of Multiple Deprivation for South Africa 2001: Technical Report*, Oxford: University of Oxford, UK.

Noble, M., Barnes, H., Wright, G., McLennan, D., Avenell, D., Whitworth, A., and Roberts, B. (2009a) *The South African Index of Multiple Deprivation 2001 at Datazone Level,* Pretoria: Department of Social Development.

Noble, M., Barnes, H., Wright, G., and Roberts, B. (2009b) Small Area Indices of Multiple Deprivation in South Africa, *Social Indicators Research,* 95(2): 281-297.

Noble, M., Dibben, C. and Wright, G. (2010a) *The South African Index of Multiple Deprivation 2007 at Datazone Level (modelled),* Pretoria: Department of Social Development.

Noble, M. and Wright, G. (2013) 'Using indicators of multiple deprivation to demonstrate the spatial legacy of apatheid in South Africa', *Social Indicators Research*, 112(1): 187-201.

Noble, M., Wright, G., and Barnes, H. (2010b) *A profile of deprivation in Limpopo province using the datazone level South African Index of Multiple Deprivation 2001,* Oxford: CASASP, University of Oxford.

Noble, M., Wright, G., Davies, J., Barnes, H. and Ntshongwana, P. (2011) *Constituency-level Namibian Index of Multiple Deprivation 2001*, Report produced for UNDP Namibia.

Noble, M., Wright, G., Magasela, W. and Ratcliffe, R. (2007) 'Developing a Democratic Definition of Poverty in South Africa', *Journal of Poverty* 11(4): 117-141*.*

Noble, M., Wright, G., Smith, G. and Dibben, C. (2006c) *'Measuring multiple deprivation at the small-area level'*, Environment and Planning A, 38(1): 169 -185.

Noble, M., Zembe, W., Wright, G., Avenell, D. and Noble, S. (2013) *Multiple Deprivation and Income Poverty at Small Area Level in South Africa in 2011*, Cape Town: SASPRI.

Smith, G.A.N., Noble, M. and Wright, G. (2001) 'Do we care about area effects?' *Environment and Planning A*, 33: 1341-1344.

Smith, G.R. (1999) *Area-based initiatives: the rationale and options for area targeting*, CASE Paper 25.

Statistics South Africa (2012) *Census 2011 Metadata,* Pretoria: Statistics South Africa.

Townsend, P. (1979) *Poverty in the United Kingdom*, Harmondsworth, Middlesex: Penguin Books.

Townsend, P. (1987) 'Deprivation', *Journal of Social Policy*, 16(2): 125-146.

Vogt, W. P. (1999) *Dictionary of Statistics and Methodology: A Nontechnical Guide for the Social Sciences*, Second edition, Thousand Oaks, CA: SAGE Publications.

Wright, G., Barnes, H., Noble, M., and Dawes, A. (2009a) *The South African Index of Multiple Deprivation for Children 2001 at Datazone Level.* Pretoria: Department of Social Development.

Wright, G., and Noble, M. (2009) *The South African Index of Multiple Deprivation 2007 at Municipality Level,* Pretoria: Department of Social Development.

Wright, G. and Noble, M. (2013) 'Does widespread lack undermine the socially perceived necessities approach to defining poverty? Evidence from South Africa', *Journal of Social Policy*, 42(1): 147-165.

Wright, G., Noble, M., Barnes, H. and Noble, S. (2009b) *The South African Index of Multiple Deprivation for Children 2007 at Municipality Level,* Pretoria: Department of Social Development.

Wright, G., Noble, M. and Magasela, W. (2010) 'Towards a democratic definition of poverty: socially perceived necessities in South Africa' in B. Roberts, M. wa Kivilu, and Y.D. Davids (eds.), *South African Social Attitudes 2nd Report: Reflections on the age of hope*, Cape Town: Human Sciences Research Council Press, pp.143-166.