Local Municipalities and Progress with the Delivery of Basic Services in South Africa

Waldo Krugell, Hannelie Otto & Jacky van der Merwe[1][2]

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[1] School of Economics, School of Communication Studies and School of Economics respectively, North-West University, Potchefstroom Campus. Contact author: Waldo.krugell@nwu.ac.za
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Local Municipalities and Progress with the Delivery of Basic Services in South Africa

Waldo Krugell, Hannelie Otto & Jacky van der Merwe[‡]

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Abstract

In 1994, South Africa adopted the Reconstruction and Development Programme (RDP) and emphasised the delivery of services to meet basic needs. Since then, great strides have been made to redress past social inequalities. However, analysis of these successes have been limited to national or provincial aggregates, when much of the responsibility for meeting the RDP commitment lies at the local government level. The need for closer investigation of basic service delivery is clear from continuing protests over poor service delivery. This paper aims to shed more light on delivery at a local level by using data from the 2001 Census and the 2007 Community Survey. The analysis involves the construction of a service delivery index for each municipality and analysis of variance to explain the changes in service delivery over the period 2001 to 2007. The results show that improved service provision may require further urbanisation and densification. Also, local economic growth in itself may not be important, but it would contribute to the ability to pay for services, thereby aiding delivery.

KEYWORDS: Delivery, basic services, community survey, local government, South Africa.
JEL codes: H11, H83, 012

1 Introduction

In 1994, government adopted the Reconstruction and Development Programme (RDP) as its socio-economic policy framework and spelt out key pillars of delivery, including meeting basic needs and developing human resources. Subsequently, macroeconomic policy frameworks such as Growth, Employment and Redistribution (GEAR) (1996) and the Accelerated and Shared Growth Initiative for South Africa (ASGI-SA) (2006) were put in place to meet the RDP commitment. Today, it is said that great strides forward have been made to redress past social inequalities. The findings of the 2007 Community Survey show that 70 per cent of households now live in formal dwellings, compared to 65 per cent in 1996 and 68 per cent in 2001. The percentage of households with access to piped water increased from 84 per cent in 2001 to 88 per cent in 2007. The use of electricity as the main energy source for lighting increased from 57 per cent in 1996 to 80 per cent in 2007. There were also substantial improvements in access to refuse removal and sanitation services (StatsSA, 2007:6). However, evidence of government's successes in meeting basic needs is often presented only in the form of provincial and national aggregates, while much of the responsibility for meeting the RDP commitment actually lies at the local government level.

This paper addresses the problem of limited analysis of the delivery of basic services at municipal level. The current literature consists of two broad strands of research: spatially aggregated analysis

*School of Economics, School of Communication Studies and School of Economics respectively, North-West University. Potchefstroom Campus. Contact author: Waldo.krugell@nwu.ac.za

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of earlier October Household Surveys (see, for example, Hirschowitz and Orkin, 1997; Budlender, 1999; Ngwane *et al.*, 2003) and a range of case studies of only a few places (see Burger, 2005 for an overview). This neglect of delivery at local level has been a function of the availability of data. Until recently, only 2001 Census data were disaggregated sufficiently to allow for analysis of the performance of all local governments to meet the basic needs of their communities. The results of the 2007 Community Survey now also allow for analysis of delivery at municipal level.

The motivation for this research stems from the Constitution which recognises that local government has a developmental as well as a service role in meeting the basic needs of communities and improving living conditions (Harris, 1999). Also, a need for closer investigation is clear from continuing protests over poor service delivery (Botes *et al.*, 2007).

This paper will shed more light on delivery at local level through the construction of a service delivery index for each municipality and an explanation of the possible drivers of changes in service delivery over the period 2001 to 2007. Principle component analysis is used to construct the index. The contribution of this study is that it is the first time that data from the 2001 Census and 2007 Community Survey are used to construct an indicator of basic service delivery at the level of local municipalities. Such a measure may prove useful to policymakers interested in service delivery and spatial development.

The results from the analysis indicate that between 2001 and 2007, the mean access to basic services showed a marked improvement, but there were increases in the variation of access to basic services between places. To improve the provision of capital-intensive, networked services will require urbanisation and densification. Local economic growth in itself may not be important, but it would contribute to the ability to pay for services.

The paper is structured as follows. The next section presents a brief overview of earlier studies of the delivery of basic services in South Africa. Section 3 presents the results of the 2007 Community Survey and compares the delivery of water, electricity, sanitation, refuse removal and housing with the 2001 Census data. An aggregate service delivery index is constructed for each municipality using principle component analysis. Section 4 contains the analysis of the basic services delivery index. In the final section, a number of conclusions are drawn and recommendations are made.

2 Literature overview

Earlier analyses of how the South African government has been able to deliver basic services and meet the RDP commitment have followed a number of approaches. The aim of the literature overview is to show how this paper's spatially disaggregated focus on service delivery at municipal level fits into the current body of knowledge.

The first approach found in the literature is that of studies that have used national level databases to examine development indicators. Hirschowitz and Orkin (1997) used data from the 1994 October Household Survey (OHS) and analysed living conditions according to race, gender, urbanisation and employment. They found stark contrasts between different groups at the national level. Africans, who constitute 76 per cent of the population, were more likely to be affected by inequality and relative deprivation. Africans were found to be more likely than other population groups to live in shacks in urban areas and in traditional dwellings in non-urban areas, and to have less access to domestic infrastructure such as water, sanitation and electricity. Budlender (1999) examined access to basic services across ten deciles of households defined on the basis of income. She used the 1995 OHS and Income and Expenditure Survey (IES) and found that access to household services is closely correlated with income. For example, in the bottom decile, 18 per cent of households relied on water sources that are situated more than a kilometre from their dwelling; in the top three deciles, this was the case for less than one percent of households (Budlender, 1999:205). Her conclusion was that a household that has poor access to basic services will enjoy lower levels of well-being and have fewer opportunities to earn income (*ibid*:218). In a similar fashion, Møller and Devey (2003) used the

October Household Surveys of 1995 and 1998 to examine trends in living conditions and satisfaction among poorer, older South Africans. They found that access to services is strongly correlated with income, but that over the period 1995 to 1998, poorer and older households did record gains in access to clean water, electricity and home ownership (*ibid*:468).

Ngwane *et al.* (2003) examined deprivation in terms of basic needs by comparing the progress in service delivery at the provincial level between 1995 and 1999, using the October Household Surveys. They found that nationally, the lack of formal housing seemed to be on the increase, while the proportion of households deprived of safe water was unchanged over the period (*ibid*: 556). The analysis highlighted disparities between rural and urban areas in South Africa. An example is the differences in the use of electricity as an energy source for heating: in 1999, approximately 77 per cent of households in urban areas were using electricity, compared to 16 per cent in rural areas (*ibid*:560). The comparisons of provincial progress also showed the more rural provinces to be at a disadvantage, for example, a relatively high proportion of households in the Eastern Cape and Limpopo Province still did not have any toilet facilities. Le Roux Booysen (2003) examined the progress that the provinces had made in delivering the RDP, through the use of reconstruction and development indices. The analysis employed data from surveys by the Development Bank of Southern Africa, the Advertising Research Foundation, the Institute of Race Relations, the Health Systems Trust, the Election Task Group, the South African Policy Service and the 1996 Census. He found that provinces that are more urbanised have advantages over the more rural provinces in the delivery of infrastructure, the facilitation of demographic transition and the improvement of standards in secondary education (Le Roux Booysen, 2003:42).

The most recent analysis in this first category is that of Leibbrandt *et al.* (2006); the study examines patterns of access poverty and inequality with a comparison of 1996 and 2001 Census data. They find that in both 1996 and 2001, almost two thirds of households occupied formal dwellings. In the inter-censal period, the proportion of Africans in formal dwellings increased from 53 per cent to 60 per cent. The proportion of households in formal dwellings increased in all provinces, especially in Limpopo. As regards other basic services, Leibbrandt *et al.*'s (2006) results show improvements in access to water, electricity, sanitation and refuse removal, specifically for the Black population and across all provinces.

It is clear that the literature paints the familiar South African picture of disparities in access to basic services and improvements since 1994. However, in all of the above cases, the level of geographical disaggregation was limited to studies of the urban-rural divide or comparisons of provinces. The analyses did not allow for further distinctions of the performance of local governments in meeting the basic needs of their communities.

For a more local perspective, a second approach in the literature comes from specific surveys of so-called quality of place. An example is the Human Sciences Research Council survey of 5700 South Africans' perceptions of service delivery in 1995 (Møller & Jackson, 1997). Within this line of work, it is also possible to distinguish between urban and rural settings. With specific focus on cities, Møller (2001) reported on the quality of life in the Durban metropolitan area. She found that background factors, such as access to formal housing and access to services, accounted for only 10 per cent of the variance in life satisfaction. However, general neighbourhood satisfaction[1], along with the background factors, explained 33 per cent of variance in life satisfaction (*ibid*:233-234). In a more rural setting, Sotshongaye and Møller (2000) examined self-assessed development needs among rural women in Ndwedwe in KwaZulu-Natal. The women, from the better-serviced Mavela ward, cited piped water and electricity in the home as important development needs. In the more remote Cibane ward, the women indicated that more basic needs such as safe water, housing and access to roads were priorities (*ibid*:117).

Finally, the third approach in the literature is one that examines cases where poor service delivery has led to protests and unrest. The Centre for Development Support at Free State University has

[1]Including satisfaction with dwelling, disinclination to move from the neighbourhood/Durban, perceived improvements in the neighbourhood over the preceding year and changes in the crime situation.

published four case studies of delivery failures and protests in Phumelela, Khutsong, Phomolong and Nelson Mandela Bay municipalities (see Botes *et al.*, 2007). They found that deficient service delivery has been caused by poor governance, individual political struggles within local government, a lack of communication, an ineffective client interface, inefficient management and issues of affordability and unfunded mandates.

In summary, national level databases show improvements in basic service delivery in accordance with the RDP commitment made in 1994. Interesting variations between communities may, however, be hidden by the level of aggregation, and earlier studies typically show that the rural areas lag behind. Closer inspection of service delivery at local level is required. The following section examines the delivery of basic services more closely through the results of the 2001 Census and 2007 Community Survey.

3 Construction of the basic services delivery index

In 2007, Statistics South Africa conducted a large-scale Community Survey to gather demographic and socio-economic data at municipal level. The results show that the population increased from 44.8 million in 2001 (based on the 2001 Census) to 48.5 million in 2007 (based on the 2007 Community Survey). The fastest rates of increase in the population were recorded in the Western Cape and Guateng Provinces (StatsSA, 2007). Access to basic services improved across the board: approximately 80 per cent of households used electricity for lighting, 88 per cent of the population enjoyed access to piped water, and 60 per cent of households had access to a flush toilet. Typically, the urban provinces of Gauteng and the Western Cape lie above the national averages, and the rural provinces such as the Eastern Cape, KwaZulu-Natal and Limpopo tend to lag behind (*ibid*). Such a high level of spatial aggregation however, obscures interesting variations between communities. Table 1 shows the mean and standard deviation of households' access to basic services in 2001 and 2007 per local municipality.

[Insert table 1 approximately here]

Table 1 reflects the successes described by national and provincial aggregates. Between 2001 and 2007, mean access to piped water inside the dwelling increased from 24 per cent to 37 percent. An average of 63 per cent of households used electricity for lighting in 2001, and this improved to almost 76 per cent in 2007. Similarly, the households with access to flush toilets and refuse removal also increased. The proportion of households that live in brick dwellings increased substantially. One should, however, keep in mind that improvements in mean access are only part of the story. Table 1 shows that, except for the cases of the use of electricity for lighting and access to brick housing, the standard deviation of access to basic services between places increased.

This widening of the distribution of access to services across municipalities raises the question of which places are forging ahead and which places are falling behind? Further analyses per type of service would, however, be cumbersome and this paper therefore proposes the construction of a basic service delivery index per local municipality as an aggregate measure of service delivery.

The construction of a compound indicator of service delivery per municipality draws on the notion that delivery in aggregate is a construct that cannot be directly measured, but analysis can identify groups of variables that measure the construct. This idea is inspired by UNCTAD's Foreign Direct Investment (FDI) Potential Index for countries (2007) and Zietsman et al.'s (2006) Growth Potential Index for towns in the Western Cape.

For the construction of a basic service delivery index per local municipality, access to basic services can be measured as:

- the percentage of households with piped water inside the dwelling,
- the percentage of households that use electricity for cooking, heating and lighting,

- the percentage of households with a flush toilet,
- the percentage of households whose refuse is removed by the local authority, and
- the percentage of households that live in a brick dwelling.

The choice of these indicators follows Le Roux Booysen (2003) who used similar measures to construct the so-called reconstruction and development indices per province. By construction, the index values reflect improvements in delivery if more households have access to piped water inside the dwelling, or if more households have access to electricity for cooking, heating and lighting.

The focus is on the level of local municipality, of which there are 231. This excludes six metropolitan municipalities and twenty district municipalities, which are outliers likely to bias the results of later analysis. The metropolitan municipalities are excluded for their population size and diversity of access to services. Cities such as Johannesburg and Cape Town are populous and urbanised, but aggregation of data at the metropolitan level does not allow one to distinguish between some of the best and the worst in service delivery that the country has to offer in formal and informal settlements. The district municipalities are excluded for their lack of population size and diversity of service delivery. These municipalities cover large, sparsely populated rural areas with limited delivery of basic services. Both the Census and Community Survey data are presented in accordance with 2005 boundaries.

The method for constructing the index is principle component analysis. This approach helps to screen the data, extract the factors, determine the communality and calculate the factor scores. The factor scores are then used for further analysis.

The analysis was done with 2001 Census data and 2007 Community Survey data for the 231 local municipalities described above. The first step was to screen the data using a correlation matrix. The analysis requires measures that correlate fairly well, but not perfectly. When all the variables listed above were used, the correlation matrix showed high correlations between using electricity for cooking and using electricity for heating both in 2001 (r = .983) and in 2006 (r = .927). Consequently, the heating variable was dropped from further analysis.

The second step in the analysis is to determine whether principle component analysis is appropriate. Table 2 presents the test statistics for KMO (Kaiser-Meyer-Olkin measure of sampling adequacy) and Bartlett's test for sphericity. KMO is a measure of sampling adequacy and represents the ratio of the squared correlation between variables to the squared partial correlation between variables. The statistic ranges between 0 and 1. A value close to 1 indicates that patterns of correlations are relatively compact and principle component analysis should yield distinct and reliable factors (Field, 2005). Here, the KMO statistic is .805 in 2001 and .820 in 2007. Additional analysis of the anti-image correlation matrix shows the diagonal elements to be greater than .05 and the off-diagonal elements to be small. Thus principle component analysis is appropriate for this data.

[Insert table 2 approximately here]

Bartlett's measure tests the null hypothesis that the original correlation matrix is an identity matrix (*ibid*). The test is significant, which means that the R-matrix is not an identity matrix and there are relationships between the variables that can be included in the analysis. Again, the conclusion is that principle component analysis is appropriate.

The extraction of the factors identified a single factor with an eigen value greater than one. The factor explains 77 per cent of the variance of the service delivery construct in 2001 and 72 per cent in 2007. Table 3 presents the communalities after extraction.

[Insert table 3 approximately here]

The communalities represent the amount of variance in each variable that can be explained by the factor that has been retained. For example, in 2001, approximately 84 per cent of the variance

associated with piped water is shared variance. In 2007, approximately 88 per cent of the variance associated with refuse removal is shared variance. The communalities also reflect what has been shown in the descriptive statistics in table 1. Over the period 2001 to 2007, the dispersion of the use of electricity of lighting and brick housing between municipalities decreased. These measures of service delivery consequently show smaller communality with the aggregate service delivery construct.

Finally, the component matrix shows the factor loadings for the single factor identified through the principle component analysis.

[Insert table 4 approximately here]

In 2001 all the measures show a large positive relationship with aggregate service delivery. Squaring the factor loadings gives an estimate of the amount of variance in a factor accounted for by a variable. For example, piped water inside the dwelling accounts for approximately 84 per cent of the variation. Note that in 2007, a greater percentage of households that live in brick housing are negatively associated with aggregate delivery. This may be ascribed to the improved delivery of housing that is unrelated to the delivery of other basic services[2].

Based on the analysis above, the final step was to calculate factor scores. The factor score is a composite score of the service delivery indicators for each of the local municipalities. In this case, the Anderson-Rubin method was used to calculate the factor scores. These scores are uncorrelated and have a mean of zero and standard deviation of one. The factors scores constitute the basic services delivery index. Positive index values indicate better aggregate service delivery above the national average. The following section presents the index results and rankings of municipalities.

4 Analysis of the basic services delivery index

Figure 1 shows a scatter plot of the aggregate service delivery indices for 2001 and 2007.

[Insert figure 1 approximately here]

Figure 1 shows a strong positive relationship between the levels of service delivery in 2001 and 2007. Because basic services are typically supplied through a network, the level of delivery in 2001 explains 91 per cent of the variation of the level of delivery in 2007 from its mean. The complete rankings are given in table A1 in the appendix, ranked by the 2007 index score. Dividing the scatter plot into four quadrants aids the interpretation as follows. Local municipalities in quadrant 3 provided below average access to basic services in 2001 and 2007. Local municipalities in quadrant 2 provided above average access to basic services in 2001 and 2007. However, the places in quadrant 1 are of particular interest. These municipalities provided below average access to basic services in 2001, but improved to provide above average access in 2007.

Using the rankings in table A1, it is possible to present more detailed profiles of each of the municipalities that provided below average or above average access to basic services in 2001 and 2007. However, of more general interest would be to examine the differences in the characteristics of those places that provided above and below average delivery and those that improved delivery.

The characteristics of places would include the environment in which the services are delivered. This draws on Brown and Jackson's (1990) microeconomic model whereby increases in public expenditure are explained by taking into account the factors that influence the demand for and the costs of public goods and services. The influences on demand include the tastes and incomes of the median voter and the costs are influenced by the size and density of the population. At a sub-national level, available measures of the service environment include the initial values of population density, gross

[2] One has to keep in mind that the delivery of housing is a provincial responsibility, though it takes place at local level. Recently the National Treasury proposed that the responsibility and funding should be assigned to local municipalities in the hope that this may help to overcome a lack of capacity and technical expertise in order to effectively provide this basic service (Ensor, 2008).

domestic product (GDP) per capita, the unemployment rate and the percentage of people living on less than $2 per day. These variables are calculated from the 2001 Census and sourced from Global Insight's Regional Economic Explorer database. The hypothesis is that municipalities with higher population densities and greater GDP per capita should be able to provide better access to services. Those with higher levels of unemployment and more people in poverty are more likely to face greater backlogs in service delivery.

One also has to keep in mind that the environment in which basic services are delivered may have changed over the period. To measure changes in the service environment, the growth of the number of households and the economic growth rate can be used. These measures are not obtained from primary data, but are obtained from the Regional Economic Explorer database. Different sources of sub-national economic information from Statistics South Africa's Census, government departments, development agencies and Regional Services Councils are compiled for these estimates (see www.globalinsight.co.za). Here the expectation is ambiguous: increases in population may reduce the level of service provision, but it may also be that improved service delivery attracts migrants. Increased population density should favour improvements in delivery. Economic growth would aid the local community's ability to pay for services and consequently raise the level of service provision.

Table 5 presents simple one-way ANOVA contrast tests of the differences in these characteristics between the municipalities that provided above average and below average service delivery.

[Insert table 5 approximately here]

Table 5 shows that there are significant differences between municipalities that were able to supply above average basic services and those that supplied below average services. The places that delivered above average services had significantly higher levels of GDP per capita in 2001, significantly lower unemployment rates and significantly fewer people in poverty. They also experienced significantly faster growth in the number of households over the period 2001 to 2007. In terms of population density and economic growth, the above and below average performers did not differ significantly.

It is also possible to narrow the focus to the places that were able to improve service delivery over the period 2001 to 2007. In all, there were only 15 such municipalities according to the basic services delivery index and this precludes more formal analysis. A description of the municipalities and their characteristics may help to shed light on the improvements in delivery shown by the index. Table 6 presents the municipalities and information about the characteristics discussed above.

[Insert table 6 approximately here]

Unfortunately the picture that emerges is not clear. Most of the municipalities that were able to improve service delivery from below average to above average did not have high population densities. Except for Moretele and Madibeng, they all had population densities below the national average. Most of the places experienced some increase in population density over the period, but not by much. Generally, the places that were able to improve delivery have GDP per capita far below the national average. In most of the municipalities, GDP per capita increased over the period that they were able to improve service delivery. The Sunday's River Valley, Mookgopong, Modimolle, Madibeng, Mose Kotane and the Mamusa municipality show substantial increases. Unemployment statistics show that in 12 of the 15 places, unemployment was lower than the national average across all municipalities. In most places unemployment remained stable or increased slightly over the period. The poverty indicator also presents mixed evidence. In 7 of the 15 places, the percentage of people living on less than $2 per day was more than the national average and in 8 places it was less than the national average. In summary, it is not clear at all that initial conditions favoured improvements in service delivery. Much the same can be said about the indicators of the service environment. Most municipalities had to provide services to a greater number of households over the period 2001 to 2006 and experienced some economic growth. A number of places, including Sunday's Rivier Valley,

Musina, Mookgopong, Modimolle and Moretele showed economic growth rates in excess of 3 per cent per annum.

Along with measures of the service environment, improved service delivery may also be explained by the capability of local government to supply basic services. Measures of this capability may include the ratio of vacant positions to total budgeted staff, capital spending as a proportion of the total budget, as well as the ratio of grant income to rates income. The data are sourced from the National Treasury, but unfortunately the latest available data are for the 2005/06 financial year. The hypothesis is that local municipalities with fewer vacant positions, with a greater share of capital spending in total spending and with more rates income relative to grants income will have the ability to improve basic service delivery. Table 7 shows the municipalities and the available indictors of the ability to supply services.

[Insert table 7 approximately here]

Again, the picture that emerges is one of disparities. The vacancy ration ranges from 5 per cent in Setsoto to 43 per cent in Modimolle. Capital spending as a portion of total spending is quite low in the Sunday's River Valley and Setsoto municipalities but generally high in the cases of Moretele, Moses Kotane, Nketoana and Mookgopong. The ratio of grants income to rates income also does not provide a clear picture. Madibeng has the lowest ratio of 0.3 and Tswelopele lies at 0.5. In general, income from grants by far exceeds the income from rates. Finally, only one of the municipalities that were able to improve the delivery of basic services from below average to above average was part of national government's Project Consolidate which aims to build local capacity and improve delivery.

5 Conclusions and recommendations

This paper set out to analyse the progress made in the delivery of basic services across local municipalities in South Africa. This involved the construction of a service delivery index for each municipality and analysis of variance to explain the changes in service delivery over the period 2001 to 2007. The results show that the mean access to basic services showed a marked improvement, but that the variation of access to basic services between places, increased. This raised the questions of which places are forging ahead and what are the predictors of improved service delivery?

The construction of a basic service delivery index showed a strong positive relationship between the levels of service delivery in 2001 and 2007. The index identified the places that provided below average access to basic services in 2001 and 2007, those that provided above average access to basic services in 2001 and 2007, and those that were able to improve delivery over the period. Analysis of variance showed that the places that delivered above average services had significantly higher levels of GDP per capita in 2001, significantly lower unemployment rates and significantly fewer people in poverty. The description of the 15 places that were able to improve delivery did not provide conclusive results and other place-specific characteristics may be at work.

There are three main conclusions. The first conclusion is that urbanisation and densification may be required to improve the provision of capital-intensive, networked services. The second conclusion is that local economic growth in itself may not be important, but it would contribute to the ability to pay for services. The third conclusion is that the measures of the quality of local institutions have to be further improved. It may be that the variables used do not measure this construct of capacity to deliver. The data are also a source of concern: a single observation per municipality in the middle of the period under analysis leaves much to be desired. Future research into this topic may take two directions: firstly, improvements in the sharpness of the tools at the level of all municipalities, with more measures and more observations across time; secondly, case studies of the successes and failures of delivery, conducting surveys and analyses of community profiles.

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Appendix: Figures and tables

Table 1: Households' access to basic services, average per municipality

Basic service	Census 2001		Community Survey 2007	
	Mean	Std deviation	Mean	Std deviation
Piped water inside dwelling	24%	19.7	37%	24.7
Use electricity for cooking	39%	22.0	57%	23.8
Use electricity for heating	36%	20.8	47%	23.6
Use electricity for lighting	63%	21.1	76%	18.7
Flush toilet	41%	28.1	47%	32.3
Refuse removal	43%	29.6	50%	33.6
Brick housing	61%	20.3	84%	13.1

Table 2: KMO and Barlett's test

		2001	2007
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.805	.820
Bartlett's Test of Sphericity	Approx. Chi-Square	1623.160	1483.861
	df	15	15
	Sig.	.000	.000

Table 3: Communalities

	2001 extraction	2007 extraction
Piped water inside dwelling	.836	.844
Use electricity for cooking	.895	.898
Use electricity for lighting	.746	.589
Flush toilet	.861	.897
Refuse removal	.794	.878
Brick housing	.535	.225

Table 4: Component matrix

	2001 component 1	2007 component 1
Piped water inside dwelling	.914	.919
Use electricity for cooking	.946	.948
Use electricity for lighting	.864	.768
Flush toilet	.928	.947
Refuse removal	.891	.937
Brick housing	.732	-.474

Table 5: Contrast tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
Population density 01	Assume equal variances	1	-1.3426	15.31100	-.088	171	.930
	Does not assume equal variances	1	-1.343	15.095	-.089	105.038	.929
GDP per capita 01	Assume equal variances	1	-14381.566	1547.609	-9.293	171.000	.000
	Does not assume equal variances	1	-14381.566	1530.900	-9.394	126.385	.000
Unemployment rate 01	Assume equal variances	1	31.229	2.100	14.870	171.000	.000
	Does not assume equal variances	1	31.229	2.111	14.794	154.511	.000
% of people on less than $2 per day	Assume equal variances	1	18.687	1.119	16.697	171.000	.000
	Does not assume equal variances	1	18.687	1.129	16.551	133.063	.000
% growth of no of households 01-07	Assume equal variances	1	-4.300	1.332	-3.227	171.000	.001
	Does not assume equal variances	1	-4.300	1.329	-3.235	169.312	.001
Economic growth 01-07	Assume equal variances	1	.356	.301	1.182	171.000	.239
	Does not assume equal variances	1	.356	.300	1.185	168.188	.238

Table 6: Improved delivery

Local Municipalities	Population density		GDP per capita (R)		Unemployment rate (Broad definition)		% of people living on $2 per day or less		Number of households		Avg Econ growth rate
	2001	2006	2001	2006	2001	2006	2001	2006	2001	2006	2001-2006
Mier	0.59	0.65	15,712	16,292	39.5%	40.0%	17.4%	16.3%	1,599	1,806	2.10%
Sunday's River Valley	11.54	10.79	9,842	12,996	40.7%	48.4%	12.9%	11.8%	9,759	9,657	4.47%
Tswelopele	8.51	8.54	9,279	9,028	32.3%	35.9%	24.2%	23.3%	13,531	14,540	-1.47%
Setsoto	21.28	22.70	9,222	9,032	24.8%	25.9%	21.9%	23.1%	33,820	38,692	0.30%
Nketoana	11.39	10.93	9,561	10,105	29.8%	33.2%	19.2%	18.4%	16,455	16,975	-0.49%
Phumelela	7.00	7.47	6,646	6,418	28.9%	29.8%	26.0%	25.4%	12,531	14,462	0.03%
Mooi Mpofana	20.54	22.40	8,018	8,180	16.2%	16.5%	25.2%	24.9%	7,478	8,760	1.58%
Musina	5.31	6.16	17,784	18,387	12.1%	12.6%	19.2%	22.6%	11,371	14,259	3.34%
Mookgopong	7.37	7.93	12,455	15,971	5.6%	5.6%	18.6%	16.6%	12,091	13,997	7.76%
Modimolle	11.96	12.62	16,392	20,198	7.9%	8.4%	11.8%	9.3%	19,176	21,484	6.67%
Moretele	137.64	136.59	6,867	9,008	47.6%	47.1%	18.8%	18.5%	41,084	44,206	3.95%
Madibeng	95.61	98.05	17,783	19,061	37.8%	38.3%	12.4%	14.3%	98,573	109,134	1.88%
Moses Kotane	43.53	43.67	9,772	11,349	58.5%	58.0%	21.3%	21.0%	60,493	65,769	2.79%
Mamusa (Schweizer-Reneke)	14.04	14.76	7,866	9,065	33.0%	33.7%	21.1%	19.1%	12,181	13,726	2.65%
Ventersdorp	12.05	12.84	5,755	6,629	22.8%	23.0%	26.0%	24.4%	11,073	12,789	2.41%
Average across all local municipalities	***58.56***	***60.89***	***15,422***	***17,111***	***41.54%***	***43.95%***	***20.27%***	***19.04%***	***30,239***	***33,760***	***2.74%***

Table 7: Indicators of the ability to supply services

	Vacancy ratio	Capital spending to total budget	Grants income to rates income	Project consolidate
Mier	0.06	0.157	13.065	0
Sunday's River Valley	0.23	0.021	3.522	0
Tswelopele	0.13	0.000	0.532	0
Setsoto	0.05	0.030	2.268	0
Nketoana	0.18	0.314	1.695	0
Phumelela	0.00	0.257	0.860	0
Mooi Mpofana	0.22	0.209	2.272	0
Musina	0.12	0.181	1.457	0
Mookgopong	0.11	0.292	0.717	0
Modimolle	0.43	0.159	1.259	0
Moretele	0.23	0.780		0
Madibeng	0.32	0.195	0.301	1
Moses Kotane	0.09	0.316	3.089	0
Mamusa (Schweizer-Reneke)	0.00	0.255	2.350	0
Ventersdorp	0.00	0.250	1.181	0

Table A1: Basic services delivery index rankings

Above average delivery			Below average delivery		
	2001	**2007**		**2001**	**2007**
Saldanha Bay	1.96356	1.59488	Greater Kokstad	-0.05467	-0.05741
Overstrand	1.77084	1.55953	Ga-Segonyana	-0.13845	-0.09707
Stellenbosch	1.78148	1.53062	Mandeni	-0.1927	-0.1137
Bergrivier	1.75887	1.51781	Polokwane	-0.0095	-0.12803
Gamagara	1.66499	1.46106	Pixley Ka Seme	-0.05063	-0.15237
Kgatelopele	1.53354	1.4386	Tswaing	-0.16156	-0.18541
Cape Agulhas	1.95014	1.40683	Lephalale	-0.23759	-0.22994
Swartland	1.83019	1.40501	Mkhondo	-0.81481	-0.26073
Breede Valley	1.68369	1.38852	Maluti a Phofung	-0.41904	-0.27707
Swellendam	1.68096	1.38757	Kwa Sani	-0.65675	-0.299
Emfuleni	1.35987	1.38077	Mogalakwena	-0.29936	-0.43973
Hessequa/Langeberg	1.64707	1.34124	Molopo	-0.30958	-0.515
Camdeboo	1.21446	1.31369	JS Moroka	-0.12291	-0.52814
Beaufort West	1.71624	1.30809	Great Kei	-0.6326	-0.56783
Breede River/ Winelands	1.62887	1.30118	Thembisile	-0.33956	-0.56788
Mossel Bay	1.79697	1.2998	Ramotshere Moiloa/ Zeerust	-0.28866	-0.58464
Richtersveld	1.59387	1.29157	Molemole	-0.39143	-0.60095
Nama Khoi	1.55166	1.2688	Umvoti	-0.87264	-0.6385
Metsimaholo	0.87908	1.26343	Abaqulusi	-0.38731	-0.64883
Midvaal	0.57587	1.25696	Ulundi	-0.85522	-0.67785
Theewaterskl	1.3992	1.24749	uPhongolo	-0.73183	-0.68197
Drakenstein	1.68558	1.24623	Lepelle-Nkumpi	-0.34454	-0.69147
Oudtshoorn	1.58789	1.22781	Nkonkobe	-0.42497	-0.7076
Moqhaka	0.8695	1.21912	Mbonambi	-0.78302	-0.72998
Cederberg	1.43142	1.21353	Greater Marble Hall	-0.47633	-0.74314
George	1.64583	1.20938	Tsolwana	-0.30212	-0.74654
Matzikama	1.48511	1.18961	Amahlati	-0.81336	-0.77333
Khai-Ma	0.90231	1.175	Richmond	-0.78733	-0.78622
Prince Albert	1.37847	1.16686	King Sabata Dalindye	-0.92251	-0.79034
Kouga	0.96821	1.16453	Emadlangeni	-0.84977	-0.79344
Govan Mbeki	0.59801	1.13454	Nkomazi	-0.7741	-0.79862
Tlokwe/Potchefstroom	0.91272	1.12645	Ngqushwa	-0.95729	-0.82176
Matjhabeng	0.50104	1.11483	Albert Luthuli	-0.82329	-0.82319
Mogale City	0.9809	1.10996	Dannhauser	-0.90177	-0.83247
Khara Hais	1.16064	1.10807	Greater Tzaneen	-0.59519	-0.84499
Emthanjeni	1.30114	1.0964	Greater Taung	-0.76837	-0.84858
Masilonya	0.09501	1.06466	Sakhisizwe	-0.85685	-0.86221
Sol Plaatjie	1.40106	1.05668	Elias Motsoaledi	-0.56862	-0.86626

Steve Tshwete/ Middelburg	0.9196	1.04654	Maruleng	-0.76626	-0.87303
Witzenberg	1.47673	1.00973	uMshwathi	-0.7496	-0.90292
Bitou/Plettenberg Bay	1.27663	0.99833	Mkhambathini	-1.00982	-0.9417
Knysna	1.18605	0.99134	uMuziwabantu	-1.3138	-0.96768
Randfontein	1.17243	0.98941	Greater Giyani	-0.8461	-0.9681
City of Matlosana/ Klerksdorp	0.82855	0.98177	Bushbuckridge	-0.50788	-0.97568
Hantam	0.99157	0.96623	Makhado	-0.68535	-1.00104
Kopanong	0.7908	0.96511	Mthonjaneni	-0.89545	-1.00231
Laingsburg	1.31857	0.96481	Thulamela	-0.83755	-1.00471
Ngwathe	0.47842	0.95279	Makhuduthamaga	-0.86497	-1.02567
Mafube	0.32808	0.94098	Greater Tubatse	-0.96154	-1.03386
Inxuba Yethemba	1.22107	0.93118	Greater Letaba	-0.79041	-1.04511
Kannaland	1.33076	0.92383	eDumbe	-1.05024	-1.0987
Lesedi	0.60445	0.90831	Aganang	-0.99087	-1.10009
Merafong City	0.83635	0.89177	Ratlou/Setla-Kgobi	-0.61825	-1.11571
Lekwa-Teemane	0.4862	0.88679	Kagisano	-0.67533	-1.12027
Westonaria	0.29793	0.86548	Senqu	-0.84511	-1.12503
Makana	0.3652	0.85886	Umzinene	-1.10427	-1.14794
Bela-Bela	0.42449	0.8536	Impendle	-1.08625	-1.15616
Siyancuma	0.45821	0.83348	Mnquma	-1.22322	-1.17374
Lekwa/Standerton	0.2935	0.82991	Moshaweng	-1.30773	-1.17915
Naledi	0.45231	0.8203	uMlalazi	-0.95701	-1.2124
Tsantsabane	1.16203	0.8097	Ezingoleni/Izingolwe	-1.30505	-1.23424
Siyathemba	1.15114	0.80029	Indaka	-1.10217	-1.24014
Msunduzi	0.85161	0.79287	Fetakgomo	-1.00969	-1.25156
Endumeni	0.82659	0.79156	Okhahlamba	-1.23032	-1.27146
Dihlabeng	0.31268	0.78715	Blouberg	-1.1454	-1.31976
Kamiesberg	0.2857	0.7629	Ntambanana	-1.3814	-1.32797
Gariep	0.46189	0.73335	Jozini	-1.57745	-1.36849
Naledi	0.26493	0.72758	Emalahleni	-1.20238	-1.37292
Emakhazeni	0.46425	0.72724	Ubuhlebezwe	-1.38716	-1.41463
Dipaleseng	0.11298	0.7076	Mutale	-1.26959	-1.43085
Ubuntu	0.774	0.70659	Imbabazane	-1.09122	-1.43534
Mangaung	0.64007	0.68713	Nyandeni	-1.66913	-1.4643
Baviaans	0.65054	0.68455	Umzimkhulu	-1.63944	-1.52606
Magareng	0.77784	0.68357	Matatiele	-1.49012	-1.54677
Thembelihle	0.47936	0.647	Qaukeni	-1.77579	-1.57909
Ndlambe	0.36065	0.63655	Nongoma	-1.47597	-1.59681
Umjindi	0.32316	0.6297	Umzumbe	-1.48645	-1.61731
!Kai! Garib	0.67455	0.62515	Nkandla	-1.78175	-1.63488
Delmas	0.25038	0.58478	Engcobo	-1.76533	-1.64554
Inkwanca	0.39344	0.57456	Umzimvubu	-1.65557	-1.65347

Maletswai	0.13113	0.57071	Hlabisa	-1.35692	-1.68452
Kou-Kamma	0.9489	0.56945	Maphumulo	-1.75963	-1.68627
Thabazimbi	0.04171	0.5566	Vulamehlo	-1.53499	-1.68879
Mantsopa	0.18627	0.54734	Nquthu	-1.52121	-1.69351
Blue Crane Route	0.40517	0.52297	Intsika Yethu	-1.61584	-1.71942
Rustenburg	0.11897	0.50758	Ndwedwe	-1.50328	-1.73249
Ikwezi	0.38756	0.50197	Ingwe	-1.64918	-1.7358
Phokwane	0.52473	0.48002	Mbhashe	-1.8091	-1.74429
Kgetlengrivier	0.16201	0.47629	Port St Johns	-1.84749	-1.76118
Newcastle	0.83967	0.4723	Elundini	-1.62967	-1.76714
Buffalo City	0.47651	0.47184	Mhlontlo	-1.67667	-1.76723
Letsemeng	0.58968	0.46594	Mbizana	-1.70037	-1.81083
Nala	0.07893	0.45641	Ntabankulu	-1.90782	-1.97556
Dikgatlong	0.25054	0.4479	Umhlabuyalingana	-1.76592	-1.99323
Karoo Hoogland	0.75315	0.44787	Msinga	-1.88443	-2.12124
Umsobomvu	0.63512	0.44128	**Improved delivery**		
uMngeni	0.80034	0.43286		**2001**	**2007**
Kungwini	0.4558	0.42429	Sunday's River Valle	-0.18637	0.62789
Renosterberg	0.80862	0.4241	Tswelopele	-0.22789	0.54827
Nokeng tsa Taemane	0.44087	0.41654	Modimolle	-0.23447	0.49507
Lukhanji	0.35867	0.39134	Mookgopong	-0.05235	0.4635
KwaDukuza	0.32251	0.3889	Musina	-0.17227	0.45664
Thaba Chweu	0.39193	0.37849	Mamusa/Schweizer-Reneke	-0.07252	0.38664
uMhlathuze	0.7052	0.37788	Phumelela	-0.20908	0.25375
!Kheis	0.21597	0.30858	Madibeng	-0.22897	0.23978
Ditsobotla/Lichtenbu	0.27178	0.29773	Setsoto	-0.21963	0.23912
Kareeberg	0.75274	0.29282	Ventersdorp	-0.16107	0.19934
Nxuba	0.25563	0.28169	Moses Kotane	-0.12243	0.18043
Msukaligwa	0.26689	0.26069	Nketoana	-0.11144	0.12953
Mohokare	0.2411	0.22553	Mooi Mpofana	-0.00178	0.12937
Emalahleni	0.8179	0.22073	Mier Local	-0.18596	0.02234
Tokologo	0.06984	0.22069	Moretele	-0.66051	0.00493
Mtubatuba	0.25978	0.20794	**Worsened delivery**		
Maquassi Hills	0.12376	0.19311	Mbombela	0.03322	-0.01521
Umtshezi	0.27183	0.08449	Emnambithi-Ladysmith	0.25408	-0.07798
Hibiscus Coast	0.28641	0.03007	Umdoni	0.35753	-0.21723
Ba-Phalaborwa	0.33712	0.02221	Mafikeng	0.1824	-0.28461

Figure 1: Service delivery indices in 2001 and 2007