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Interrogating key determinants of poverty and inequality in South Africa since 1994 using life circumstances and service delivery indicators

Kefiloe Doris Masiteng

A thesis submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in fulfilment of the requirements for the degree of Doctor of Philosophy

Johannesburg, 2016

ABSTRACT

The study articulates the key indicators that are drivers of poverty and inequality in the post-apartheid society. Historically, education, employment, household income and service delivery were not used as the foundation for measuring poverty and inequality in the country. Specific objectives for this study are to interrogate the key determinants that have influenced poverty and inequality in South Africa since 1994, and to investigate how the predictors of life circumstances and service delivery changed across the population over the period 1994–2007.

Descriptive analysis was used on household surveys (General Household Survey (GHS) 2002–2011, Quarterly Labour Force Survey (QLFS) 2008–2011 and Living Conditions Survey (LCS) 2008 and 2011) to determine changes and trends in the living conditions of the population. Multivariate analytical approaches were applied on CS 2007 data with a sample of 360 000 households conducted by Statistics South Africa. Statistical regression models were developed for life circumstances and service delivery measures to explain poverty and inequality. Principal component analysis was applied on CS 2007 to promote multidimensional approaches for poverty and inequality measurement using development indicators as the components for life circumstances and service delivery.

The main findings of the study show that low levels of education and high unemployment are the determinants of poverty and inequality. Positive linear relationships between educational attainment and age, employment and population group, age, sex and educational level of household head were established. Income disparities further perpetuate disparities in life circumstances and service delivery. Disparities service delivery are not the determinants but the consequences of poverty and inequality. Poverty and inequality in South Africa are structural showing that, while many people progressed in the last twenty-two years, many remained behind, and even progressed negatively as they remained worse off based on data since the 1996 census. While much work has been conducted on life circumstances such as education, employment and income, work on service delivery in relation to poverty is still limited and thus deserves more attention.

DECLARATION

I, Kefiloe Doris Masiteng declare that this thesis is my own unaided work, conceptualised and formulated by myself. It is submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in the Faculty of Law, Commerce and Management at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

_____

Kefiloe Doris Masiteng

Signed at _____

On the _____ day of _____ 2016.

DEDICATION

I would like to dedicate this work to my husband, Teboho Masiteng for being there for me and the children, and for his understanding and support even when I worked long hours on this research.

To my children, Thabang, Karabelo, Katleho, Thato, Kamohelo, Karabo and Thabiso.

To Statistics South Africa, especially Dr Lehohla, for the opportunity to study, and the continuous intellectual guidance and content development.

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I would like to thank the Lord and my Saviour Jesus Christ, who gave me strength to continue with this work even when I wanted to give up and thought it was impossible.

I sincerely acknowledge the School of Governance and the Committee members who evaluated this work.

I am grateful to my two supervisors, Professor David Everatt and Professor Mike Muller, for their continuous guidance, courage and support. Professor Everatt, for his tireless support in the formulation and construction of the research and writing, making sure that there is coherence and context in the proposal and the research. Professor Muller has played a special role in methodological guidance, number crunching and statistical analysis of the data towards completion of this research.

My sincere gratitude and appreciation also go to Dr Moses Lubaale from Uganda, for his continuous technical and analytical support as well as shaping the research. I would like to thank Angie Uban, Merle Werbeloff and Annelize Allner for their analytical and editorial assistance.

Special thanks to Connie Mavele, Millicent Leriba and Nomsa Montshioane for their patience and support in the typing and retyping of this research report. Without their assistance, I would not have come this far.

I find it very necessary to acknowledge the colleagues and mentors who continuously gave me support and feedback on this research. Dr John Kekovole and Professor Odimegwu for their continuous conceptual assistance; Dr Maletela Tuoane-Nkhasi and Dr Khoza for their inputs in the technical and analytical work; Mr Ros Jennings for his support on the reading and shaping of the literature review; and Dr Sandile Simelane who has been instrumental in pulling together the poverty debates with me over time.

To all my colleagues and friends, thank you.

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CHAPTER ONE

INTRODUCTION

The main purpose of this study is to articulate selected aspects of poverty and inequality within the context of post-apartheid South Africa. This has been done from the perspective of life circumstances and service delivery measurement. The structural theoretical framework encourages an understanding of poverty and inequality through expanded measurement in the multidimensional approach (Monyai, 2015). The lack of standard definitions and contestations around concepts, methods and approaches to poverty and inequality measurement remains a challenge in South Africa and globally. A positivist approach to measurement provides a basis for a broader analytical approach in interrogating key factors of poverty and inequality in South Africa since 1994.

One of the tasks of this study was to take raw numbers and conceptualise them into reliable and valid expanded measures of poverty and inequality upon which sound public policy can be applied, reviewed and reformulated. This will form the basis for sound evidence-based decision-making (Statistics South Africa, 2013). Looking at the data to understand life circumstances and service delivery for evidence-based policy and decision-making is important. The indicators for these measures were used to understand their role as factors affecting poverty and inequality among the South African population since 1994.

"Whether we wish to adjust the size of our fiscal deficit, increase social spending, pursue macro-economic convergence in the region, or assess progress in achieving the Millennium Development Goals (MDGs), accurate, timely, useful data lies at the heart of these efforts. That is to state the obvious. What is less obvious is to work with the data, assessing its usefulness, applying techniques to uncover the facts and dynamics lying buried beneath the raw numbers, and applying what you have unearthed to the questions of public policy… This is a limitless task and it is especially limitless in Africa" (Manuel, 2004).

This study was founded on the professional work done by the researcher in the South African Presidency in establishing a government-wide monitoring and evaluation function in 2005 (The Presidency, 2005). In 2005, Cabinet approved the Government-Wide Monitoring and Evaluation (GWME) framework for the country as a breakthrough for building a culture of measurement in the country. The system contained development indicators across five clusters of government: social, economic, justice, international, and governance and administration.

This set of indicators measures progress in the implementation of government performance, informs policy directives and provides information for the National Development Plan (NDP, 2030) and international comparisons such as MDGs. The planning, monitoring and evaluation systems form the basis for development planning and measurement to ascertain the state of the population on poverty and inequality.

Most poverty and inequality measures do not include life circumstances and service delivery indicators as the building blocks or foundation for measuring poverty and inequality in the multidimensional approach manner. That limits the manner in which the broader perspective for poverty and inequality can be understood (Alkire et al., 2011). South Africa is regarded as an upper middle-income country, but it is a country of stark contrasts. Extreme inequality evident in South Africa is a result of destitution, hunger and overcrowding, which occurs side by side with affluence in South Africa (Woolard & Klasen, 2005).

Emerging evidence in South Africa from income and expenditure surveys (Statistics South Africa, 2013) is that the gap between the rich and most other citizens has now widened to 0.69 as a Gini coefficient. Whether measurements were based on the gap in terms of income, wealth, standard of living or opportunity, the results remained the same. This is in support of the argument that inequality continued to rise and average income (after adjusting for inflation), has remained stagnant (Benschop, 2012).

Inequality has remained stubbornly high in the post-transition period, mainly because of rising disparities within race groups. There is also emerging evidence of a large growing African middle class (Van der Berg et al., 2007).

Chapter 1 of the thesis gives the background to the study. This introductory chapter provides an argument for the problem, situating the problem in the South African context of poverty and inequality from apartheid South Africa. The problem statement, purpose, objectives and the research questions for the study are outlined.

Chapter 2 of the study comprises the literature review. It examines current life circumstances and service delivery discourse. The chapter also examines the challenges around the measurement of a complex phenomenon such as poverty over the years, including the history of poverty and inequality analysis.

Chapter 3 captures the methodologies and datasets that were used in the study. The methods contained in this study are mainly descriptive and predictive analyses. The key predictive methodologies were through logistical regression models and principal component analysis (PCA) mainly based on Community Survey results of 2007 (Statistics South Africa, 2008).

Chapter 4 presents descriptive and predictive analytical results on both the life circumstances measure (education, employment status, household income and household goods) and the service delivery measure (access to water, electricity and refuse removal). This chapter reports on the drivers of change and disparities across the life circumstances and service delivery measures as they interplay across the population.

Chapter 5 comprises a discussion of results with emphasis on meta-theoretical reflections on the findings in Chapter 4. Implications for the trends in service delivery and life circumstances across the population are reflected upon.

Chapter 6 is a concluding chapter building on the research, results, findings and meta-theoretical reflections in the previous chapters. It asks whether the research questions have been addressed, and provides concluding remarks.

1.1 Historical background to the study

The background of this study is anchored in the history and evolution of poverty and inequality in South Africa, and the legacy of apartheid. Since the fall of apartheid, many household surveys and censuses conducted by Statistics South Africa and research by many scholars attest that income poverty has declined, even though high levels persist in aggregate form among the black and coloured population groups. While there have been improvements on the social side of provision of services, where above 85% of the population has access to water and electricity (Statistics South Africa, 2011), inequality remains high and continues to widen (Bhorat, Van der Westhuizen & Goga, 2007; Leibbrandt, Woolard, Finn & Argent, 2010).

Development studies provide empirical evidence that poverty in South Africa is structural and driven by factors such as economic growth and demographic transition (Austin, 2006). The legacy of the Land Act of 1913 and the segregation laws over the period 1920–1987 with movement of people from their land have had long-lasting structural effects on the living conditions of the people of South Africa (Gumede, 2010). These effects are seen across the pillars of the structural theory of poverty, showing individual inefficiencies, cumulative and circumstantial origins, geographical disparities and political economic distortions as indicated in the theoretical framework of this thesis, Figure 1.1 on page 9.

Geographical differences manifest themselves across the population such that developmental and poverty indicators in post-apartheid South Africa differ significantly by location. A developmental trajectory has indicated that the dynamics around poverty and inequality in post-apartheid South Africa may be solved through further restructuring of the economy. Evidence confirms that inequality relative to race, gender and geographical location has not improved, while little progress has been made in eradicating household poverty. More specifically, the black population remains worse off in most aspects of human development (Gumede, 2010).

The complexity of poverty and inequality measurement, in the broad framework of development theory, remains a challenge in South Africa. The investigation in this thesis is based on developing broad measures of life circumstances and service delivery and using them to interrogate the factors affecting poverty and inequality.

Judging the past by the present is a theme of this study, where indicators developed in 2005 were used retrospectively to understand the transition in the living conditions of the population post-1994 and to attribute these changes in poverty and inequality to the performance of government. Because poverty is referred to in this study as a multidimensional phenomenon, the theoretical framework of this study shows the multi-theoretical approaches (Statistics South Africa, 2014).

The multi-theoretical approach was essential to deal with a collection of fundamental assumptions on which the investigation of the research and developmental problems are based. Modern, post-modern and interpretive challenges to positivism and critical realism are dealt with through incorporation of pragmatism into sociological theory (Marks, 1992; Van de Ven, 2007).

In 1994, the democratic government was elected with the mandate to deliver to the citizenry. It developed a range of anti-poverty programmes, but did not have an overarching anti-poverty and inequality policy (Everatt, 2003). For example, the educational, labour market and social development policies have been developed in the departments for particular programmes, but not integrated to finally deal with poverty and inequality. This happened until the discussion document titled *Towards an Anti-Poverty Strategy for South Africa* was circulated for comment (The Presidency, 2006).

The reasoning behind the problem is that some of the poverty and inequality programmes were complementary and others contradictory in approach. There was no process to develop a set of rigorous indicators for the purpose of poverty and inequality measurement. For the state, this led to and fed into an ongoing dispute regarding government's performance (The Presidency, 2006).

Since 2004, government has embarked on developing a monitoring and evaluation system for the whole of government, known as the Government-Wide Monitoring and Evaluation System (The Presidency, 2005b), which can provide measures for judging the past by the present. The indicators used in this study are a subset of the development indicators and include indicators for living conditions and service delivery.

The history of government attacking poverty and deprivation since 1994 began with the Reconstruction and Development Programme (RDP) in 1994, which changed to the Growth, Employment and Redistribution (GEAR) strategy (The Presidency, 2003) and recently the National Development Plan 2030 (The Presidency, 2014). South Africa has become a state with a number of welfare offerings that generate perverse incentives and reward certain types of behaviour. There is persistent and worsening non-specificity alongside growing impatience towards the poor themselves, while they remain in stubborn poverty-stricken conditions (Everatt, 2009).

Against the history of apartheid in South Africa, poverty and inequality have evolved. While poverty and inequality are used side by side in this thesis, they are different phenomena that measure the difference between the haves and the have-nots on the one hand (poverty) and income distribution on the other (inequality). Their measurement should be done in a multidimensional approach such that the two phenomena can be explained in the population together with other social indicators (Statistic South Africa, 2014). Levels of inequality in South Africa have remained high over the post-apartheid period, but South Africa is unique from other countries due to its racial disparities that have previously affected coloureds and blacks more than it has Indians and whites (Gumede, 2010).

A unidimensional approach depending on income and/or expenditure alone has provided a skewed picture of poverty and inequality over time (Statistics South Africa, 2014). This approach failed to provide an understanding that socioeconomic indicators have an influence on the state of the population,

resulting in the current structural poverty and inequality. The multi-theoretical approach was essential to deal with a collection of fundamental assumptions on which the investigation and developmental problems are based (Marks, 1992; Alkire et al., 2011).

Patterns, changes and disparities in socioeconomic indicators such as education, employment, household income, acquisition of assets and access to services have not been used as the basic factors or determinants that influence poverty and inequality. Current problems are defining, measuring and interpreting poverty and inequality (Everatt, 2003; Magasela, 2005).

Understanding poverty and inequality in terms of a structural theory forms the basis for measuring poverty and inequality in this thesis. The framework defines the five pillars of poverty and inequality as cultural beliefs, individual deficiencies, political economic distortions, geographical disparities, and cumulative and circumstantial origins (Bradshaw, 2006).

The key analytical and intellectual issues guiding measurement should include the use of statistical analyses of poverty and inequality by applying multivariate regression models and principal component analysis as statistical methods that can stand the test of time. The indicators are selected according to the structural theory of poverty (Bradshaw, 2006). PCA responded to the third research question.

Studies of income distribution have become important in South Africa, due to differences in the results that each study generates while undertaking income analysis of the South African population. There are profound areas of contention as to whether poverty and inequality have increased or decreased, in relation to the post-transition trends from apartheid to democratic rule. The post-apartheid distributional regime continues to divide South Africans into social classes (Simkins, 2004). Some findings are supported in this study (see Chapters 4 and 5) and the Millennium Development Goals (MDG) report released by Statistics South Africa in 2013.

From 1991 to 1996, the incomes of the poorest 40% of African households dropped by more than 20%, while the wealthiest 10% of African households experienced increases in income of almost the same magnitude (Whiteford & Van Seventer, 2000).

The latest report on the poverty profile in South Africa indicates that 4% of average consumption is among the lowest quintile, while 63% is in the upper quintile (Statistics South Africa, 2014). High income and consumption disparities across the South African population remain a challenge.

There is usually an underestimation of the income levels of individuals but this underestimation of the income of the rich and the poor is underestimated to the same degree (Deaton, 2001). This was also evident in the Census 2011 and IES 2010–2011 data where a high proportion (41%) of respondents reported no income (Statistics South Africa, 2012a; 2012b). The importance of income appears to vary among countries, where welfare levels are lowest in the poorest countries but the relationship between income and welfare is weak beyond a relatively low international level of income per capita. This is consistent with the argument that happiness depends in part on the gratification of certain absolute biological and psychological needs (Kingdon & Knight, 2003).

1.2 Theoretical framework of the study

Elesh (1970) defined two theories of poverty as cultural theory and structural theory. The cultural and situational explanations suggest a relational perspective between culture and situation in which individuals find themselves, thus the belief that the behaviour of the poor is culturally oriented (Bradshaw, 2000; Chain, 1983). Creating an understanding of theories surrounding poverty, inequality and development in the population remains a critical but complex business in South Africa. Many theories have evolved over the past century, especially in Western cultures. These theories have attempted to explain how human development occurs (Kelly, 1995). This study adopted the structural theory of poverty. Cultural beliefs (value structures within the population groups), individual deficiencies

(character and intelligence, age and sex/gender), political economic distortions (income and competition for resources), geographical disparities (provincial and urban/rural area) and cumulative and circumstantial origins (levels of education, employment, earnings and access to basic services) clearly define the complexity of poverty (Bradshaw, 2006).

The five pillars of the structural poverty theory conceptually relate to life circumstances, the inability to compete for resources as well as a state of disadvantage and discrimination. Four of these pillars, excluding cultural beliefs, are fundamental to the structure of attaining two objectives, answering the three research questions and examining the key determinants of poverty and inequality in South Africa since 1994. Changes, disparities and predictions of poverty and inequality in the population relate to the pillars of individual deficiencies, geographical disparities, as well as cumulative and circumstantial origins. Performance of government relates further to political economic distortions across the population.

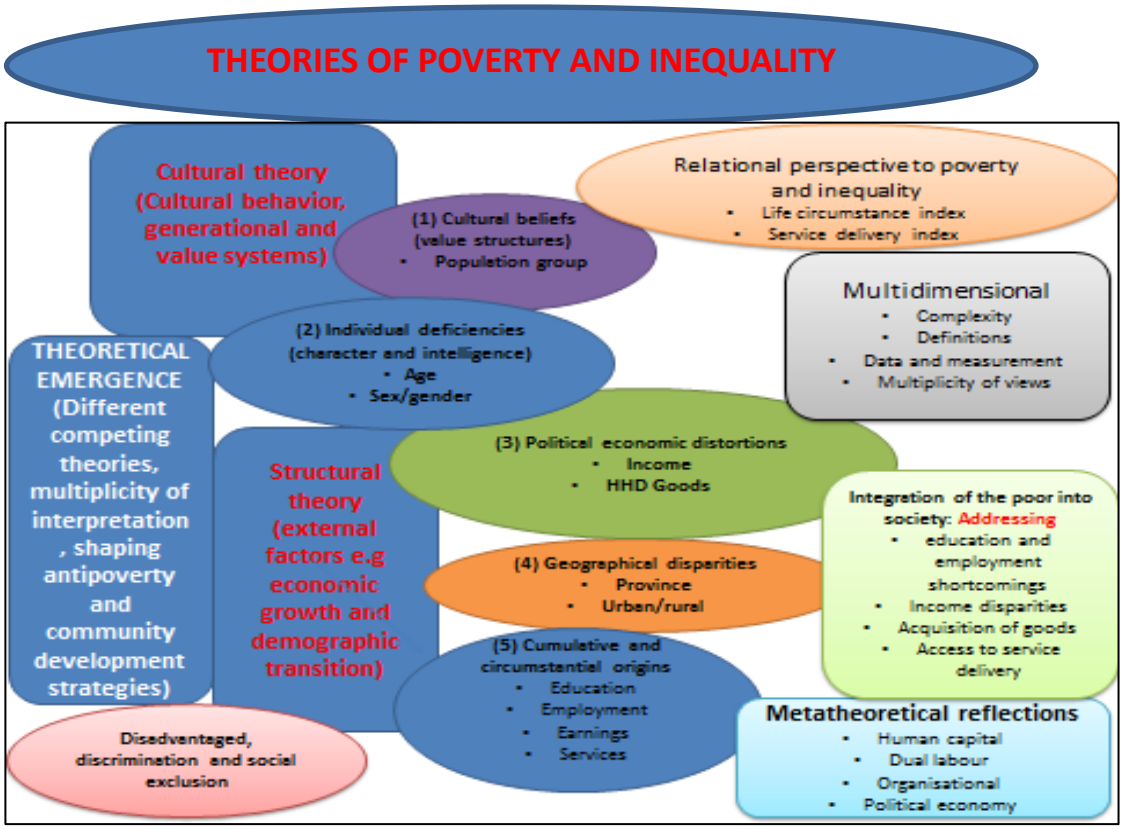


Figure 1.1: Theoretical framework of the study

1.2.1 Life circumstances and service delivery indicators in the structural theoretical framework

As reflected in Figure 1.1, the structural theory of poverty relates to external factors affecting the livelihood of individuals. These external factors include economic growth and demographic transition. Emerging issues from these external factors result in social exclusion and discrimination, and others remain disadvantaged across population groups. The cultural theory manifests itself across the population through cultural beliefs observed in value structures and across the population groups.

The structural theory manifests itself through individual deficiency pillar, which relates to character and intelligence observed through disparities in gender and age groups. Within the context of political economic distortions, the structural theory of poverty manifests itself through disparities in income and ability of households to acquire goods as life circumstances indicators.

The third pillar of the structural theory relates to geographical disparities, which are observed across the population based on provincial and urban/rural disparities in life circumstances and service delivery. The last pillar in the structural theoretical framework is cumulative and circumstantial origins. In this study, the pillar relates more to life circumstances indicators such as education and employment as well as service delivery indicators.

Having mapped the theoretical framework, the rational perspective for poverty and inequality is embedded in life circumstances and service delivery indicators. Multidimensional approaches to measuring poverty become more important and necessary to understand the influence of life circumstances and service delivery on the ultimate status of poverty across the population.

Lastly, the issues of meta-theoretical reflections emerge, indicating broader theoretical implications of life circumstances and service delivery on poverty and inequality. These reflections raise important broader issues of human capital, dual labour, organisational development and political economy to be understood.

Five pillars of poverty shape anti-poverty strategies as well as community and societal development programmes in the population. These are individual deficiencies; cultural belief systems that support subcultures in poverty; political economic distortions; geographical disparities; and cumulative and circumstantial origins (Bradshaw, 2006).

Different and competing theories of poverty show their various roles in shaping the different community development programmes in society (Bradshaw, 2006). The complexity of defining poverty is attributable to the fact that it is a social phenomenon, which is multidimensional in nature. It is important to remember that poverty goes beyond economic spheres and includes one's ability to compete for resources and participate in political and social life (Woolard & Leibbrandt, 2006).

The conservative view is that poverty is an individual phenomenon, while the alternative view is that poverty is a structural phenomenon (Bradshaw, 2006). The structural theory, which is supported by this thesis, argues that poor people are different every year and economic structures need to respond to changes to make things better. However, the individualistic theory predicts that poor people are the same every year and they need paternalistic interventions to improve their situation (Austin, 2006). This argument should not be entirely ignored as it contributes to the discourse in the poverty and inequality debate.

Analysis of poverty as a multidimensional phenomenon should be promoted through the use of improved, varied and multivariate regression models and principal component analysis as statistical methods (Monyai et al., 2015) in support of the structural theory. The multiple dimensions include economic, sociological (mainly urbanisation and industrialisation), psychological, anthropological, political as well as global issues (Woolard & Leibbrandt, 2006). The rationale for the theoretical overview of poverty, as depicted in Figure 1.1, is to review the evolution of poverty theories over time and to evaluate how they relate to the questions asked in this study.

The multidimensional nature of poverty and inequality makes it necessary for the research environment to understand other paradigm shifts in the social theory in

the positivistic and purist approach, and further promotes critical realism (Van de Ven, 2007). The five pillars of constructs in the structural theoretical framework informed the choice of the indicators used for interrogation of socioeconomic factors affecting poverty and inequality in the post-apartheid era.

The main contribution of the study was to develop a multidimensional approach using the multivariate analytical approach for contribution to measuring poverty and inequality (Monyai et al., 2015). The study has developed an alternative method for measuring poverty and inequality and expanding measurement through the multidimensional approach by using purposefully constructed measures of life circumstances and service delivery. In order to undertake the interrogation, the study started by investigating disparities and changes in the living conditions of South Africans since 1994, using selected development indicators.

1.2.2 Relationship between the broad theoretical framework and the research paradigm

The four pillars of the structural theoretical framework of poverty (excluding cultural beliefs) relate closely to the research paradigm. The pillars are individual deficiencies, political economic distortions, geographical disparities, and cumulative and circumstantial origins. These pillars relate to objective one of the study, which is to interrogate the key determinants that have influenced poverty and inequality in South Africa since 1994.

Having examined the indicators through descriptive analysis, a better understanding of how life circumstances and service delivery manifested themselves across the population shed light on changes and disparities in structural components of the framework.

These four pillars of poverty are understood through answering the two questions under objective one of the study.

The first two questions in the research were aligned to the first objective, namely to interrogate the key determinants that have influenced poverty and inequality in South Africa since 1994. They were meant to measure the changes that have occurred in the living conditions of the South African population since 1994. Secondly, they measured the extent of the disparities in life circumstances and service delivery in South Africa across the population since 1994.

Issues on the geographical disparities relate to the demographic transition indicating changes and disparities in provinces, sex, population groups, and age, in line with the methodological framework.

There are broad aspects of poverty and inequality indicated in Figure 1.1, such as rational perspective, multidimensional approaches to poverty, measurement, meta-theoretical reflections and integrating the poor in society. These aspects are related to objective two of the study, namely to investigate how the predictors of life circumstances and service delivery changed across the population over the period 1994–2007.

Based on predictive and principal component analysis, multidimensional approaches to measuring poverty were applied. The analysis provides an understanding of relationships and associations across dependent and independent indicators using different statistical methods. The objective was further aligned to the third research question, which is to understand the predictors of life circumstances and service delivery in South Africa as at 2007.

Using secondary analysis, the two objectives of the study were attained through, firstly, the use of descriptive analysis on development indicators that are the components of life circumstances and service delivery, and secondly, the use of predictive and principal component analysis to measure relationships across the development indicators and demographic indicators.

1.2.3 Concepts and definitions

- *Access to electricity:* Proportion of the population who have access to electricity
- *Access to water:* Proportion of the population who have access to water
- *Access to refuse removal:* Proportion of the population who have access to refuse removal by municipality or private company
- *Development indicators:* Indicators developed for measuring progress in government programmes as contained in the Government-Wide Monitoring and Evaluation System
- *Determinants:* Factors associated with changes in a particular phenomenon
- *Disparities:* Observed differences across the population and around a particular phenomenon
- *Dual Labour Theory:* A theory of labour market segregation
- *Educational attainment:* Level of educational achievement by individuals indicated as primary, secondary or tertiary
- *Employment:* A condition of having paid work (work for pay)
- *Head of household:* A person who takes decisions in a household
- *Household goods:* Acquired goods for use in a household such as television, fridge, phone and furniture
- *Household income:* Income acquired for basic use per household

- *Household survey:* A scientific research to establish household and person variables, and collects data about private households

- *Human capital theory:* The composition of employee skills, knowledge and abilities

- *Inequality:* The condition of being unequal, lack of equality, disparity, based on how econometric metrics are distributed among individuals and groups in a population

- *Life circumstances:* Composite indicator and dimension of poverty and inequality made up of the indicators education, employment, income, and household goods

- *Multivariate analysis:* Statistical techniques for observation and analysis of more than one statistical outcome variable at a time

- *Positivism:* A trend in bourgeois philosophy that can be used to declare natural (empirical) science to be the sole source of true knowledge and rejects cognitive value of the philosophical study

- *School enrolment:* The population who are reported to have been enrolled for regular schooling in a particular year

- *Secondary analysis:* Analysis of data that was collected by someone else than the user or investigator conducting the research

- *Service delivery:* Composite indicator and dimension of poverty and inequality made up of the indicators for access to basic services

- *Unemployment:* Status of being without work and actively seeking work

1.2.4 Contextual background

Symptoms of the problem of poverty measurement are mainly in the contestations and lack of consensus around concepts, methods, measures and definitions of poverty and inequality (Everatt, 2009). Measurements for poverty and inequality have used unidimensional approaches and a slow evolution of multidimensional approaches. Evolution of multidimensional approaches has been fragmented and inconsistent, resulting in different schools of thought for different disciplines and disparate use in development studies.

Poverty is a complex, dynamic and diverse concept with no universal definition, and it is a multidimensional phenomenon. Jansen et al. (2015) argue that the multidimensional nature of poverty resulted in various approaches to its measurement. Most studies adopted absolute or relative income approaches (Alkire et al., 2011), mostly applying poverty lines. Such approaches had limitations of understanding the broad socioeconomic aspects of poverty and inequality in a manner that would miss elements of deprivation, discrimination, disadvantage and social exclusion in society within the broad structural theory of poverty (Monyai et al., 2015).

Social exclusion refers to a process through which certain groups in society are deprived and marginalised (Jansen et al., 2015). The contestations in measurement of poverty and inequality raise the need for an expanded approach that includes development indicators in the five pillars of the structural poverty theoretical framework (Figure 1.1).

Grounding the problem in the performance of government supports the argument that failure of institutional and organisational structures causes poverty among individuals, and this includes failures in government programmes. The structural theory of poverty indicates that political economic distortions relate to the observations beyond individuals and community (Andy, 2011).

This study uses Van de Ven's (2007) framework as a research paradigm for engaged scholarship to bridge the gap between theory and practice.

The existing knowledge gap is that the complex realities of poverty and inequality require the use of multiple perspectives. Robust knowledge is invariant across multiple models, and models that better fit the problems they are intended to solve are selected, producing an evolutionary growth of knowledge (Van de Ven, 2007). The complexity of poverty shows that it can also be addressed from different disciplines. Understanding changes in the living conditions of the population has been a contested issue over time. The issue of progress made in poverty eradication and human development in South Africa has not been able to provide convincing evidence as to whether any positive change has happened at all and remains highly contested (Ruiters & Bond, 1996). This remains a problem.

This study makes a claim that the role of other social indicators has not been clearly attributed to poverty and inequality outcomes across the population, and they have not been included in the research agenda for poverty and inequality. This is coupled with controversy and lack of clarity over levels of poverty and inequality in the population, and a lack of understanding of which indicators in particular impact on these conditions (Woolard et al., 2010). This remains a challenge today.

Gumede (2010) argued that in the post-apartheid era, women are found to be worse off while rural areas continued to have lower human development and higher human poverty indices reminiscent of the apartheid South Africa. This reflects the political history of South Africa where the majority of the black population experienced systematic discrimination by the white minority. This phenomenon has been so deeply entrenched that its legacy remains very much alive.

In support of the geographical disparities pillar, Gumede (2010) concluded that government has not succeeded in creating an egalitarian society, with South Africa's economic inequality being the highest in the world. In this context, racial, gender and spatial redress have not gone far enough, resulting in the skewed income distribution and relatively high human poverty index, supporting the political economic distortions pillar.

On the other hand, a report by the World Bank (2014) on fiscal policy and redistribution in an unequal society attests that much progress has been made since the end of apartheid in 1994. This argument is based on the use of the tax and benefit system as part of the South African development programme. The report further argues that government has expanded its social assistance programmes and devoted resources to social development (World Bank, 2014).

The World Bank report of 2014 makes a positive argument about the development of South Africa in the post-apartheid era. It commends the role of fiscal policy in addressing the challenges of poverty and inequality. But it also highlights that the high inequality restrains economic growth and perpetuates social distress (World Bank, 2014).

The challenges of slow economic growth are positively related to high levels of unemployment, poverty and inequality, while social grants have been seen to rescue households out of poverty. The political distortions theory shows that poverty can also be attributable to political failure (Andy, 2011). Promises have raised the hopes of the citizens on service delivery as government embarked on meeting its mandate.

Poverty measures are used first to monitor social and economic conditions and to provide benchmarks of progress or failure (Ruiters & Bond, 1996).

Life circumstances and access to service delivery have been driven by external factors in the livelihood of the people in relation to education, employment and income. Increasing poverty and inequality during the second half of the 1990s are findings from much of the research conducted on household surveys from Statistics South Africa (Meth, 2006; May, 1998; Bhorat et al., 2010).

The turn of the century saw an expansion of the social grant system and skilling the labour force as the major catalysts for poverty reduction. In this context, job creation was observed as an alternative reductive device for poverty and inequality, particularly for the black population group, which is made up of many of the poorest who are also unskilled (Van der Berg et al., 2006).

The long-term development trajectory of South Africa has generated a highly unequal society with a strong racial component. The bottom half of income distribution has always been occupied by the black population group as a result of active racial discrimination in apartheid state policy (Leibbrandt et al., 2010).

Van der Berg et al. (2006) argue that the legacy of the political history of South Africa is the basis for the current status of high levels of poverty and inequality in South Africa. The social transformation challenge for government has been concerned with removing the gross inequalities that had been created by apartheid.

Based on this argument, particular focus of government was placed on the upliftment of millions living in poverty. Just before 2006, there was the sense of a stable aggregate performance, which evidently showed most growth gains. Such gains had masked large structural changes within the South African economy, which had important consequences for society and the structure of the labour market (Van der Berg et al., 2006).

Empirical evidence points to the importance of dealing with the crisis of unemployment to reduce high levels of inequality (Statistics South Africa, 2014). South Africa has a legacy of a high number of youths out of work. Millions of them have seen deterioration in their human capital, and future prospects of employment have become grimmer by the day. This challenge is coupled with low per capita income. Poverty is associated with distributional patterns that are skewed (Van der Berg et al., 2006).

With the rising levels of inequality across the globe, young people and the poor fall further behind. While taxes and social transfers have partially cushioned the rise in labour market and income inequalities (OECD, 2014), poverty and inequality remain high. Income poverty has been on the decline in the aggregate, but has persisted among blacks and coloureds. It further increased across urban areas. Non-monetary wellbeing has improved in relation to piped water, electricity and formal housing over the post-apartheid period up to 2008 (Leibbrandt et al., 2010) and beyond, according to Census 2011.

South Africa has an infamous history of high inequality coupled with a racial stamp (Gumede, 2010). This has continued in the post-apartheid landscape. Two indicators that have attracted attention in the post-apartheid political economy have been poverty and inequality inherited as the legacy of apartheid.

The complexity of this study was in developing models that explain measures of poverty based on constructed measures for life circumstances and service delivery as the dimensions of poverty and inequality within a structural theory of poverty. Methodological assumptions, which related to the appropriate forms of investigation for the development indicators in question, were constructed and tested. In this case, the theory argued that improvements are evident, but underlying factors for the changes have not been understood (Chao-Ying et al., 2002).

An appropriate statistical method for investigating these complex issues within a population is required (Alkire et al., 2011). Dealing with population and society relies on empirical facts, reasons, evidence and proof, not on intuition (Bunge, 1996).

Poverty is recognised as a complex and multidimensional phenomenon. It can be best understood in the context of the living conditions of the society within which it is measured (Monyai et al., 2015). It has only been in the recent years that more complete and relevant data exists on individuals and households to capture the multidimensional nature of poverty in South Africa, beyond money, which allows measures of poverty headcount and Gini coefficient (Statistics South Africa, 2013).

Traditional and unidimensional approaches of data aggregation have exacerbated errors in poverty measurement and it became difficult to assess accurately the multidimensional changes across the population, including the related policy changes and effectiveness. For example, income has been exclusively used in poverty measurement, but it is merely an indirect measure of poverty (Alkire et al., 2011). In broader terms, poverty is experienced as an unavoidable low consumption that denies individuals to pursue a normal or decent livelihood (Walker et al., 2008).

1.3 Problem statement

Poverty levels were not well computed and publicised nor used in policy. The post-apartheid era since 1994 has seen inequality levels oscillate between 0.6 and 0.69 as measured though the Gini coefficient. Headcount figures were observed in 2001 as 17% and in 2011 as 8% (Statistics South Africa, 2014). An analysis of these figures over time suggests increasing levels of poverty and inequality.

In South Africa, studies have slowly moved towards the multidimensional nature of poverty (May, 1998; Woolard, 2002; Bhorat, 2007; Everatt, 2009; Van der Berg et al., 2010; Statistics South Africa 2006, 2012 and 2014; Monyai, 2015). This is quite a departure from the traditional unidimensional to multidimensional poverty measurement, suggesting that there is a need for further elaboration (Alkire & Foster, 2011).

If the country had data on achievements in several dimensions, distributed across the population, following Sen (1976), it would be easier to ask, who is poor and how should overall poverty be measured in this setting? There is enough data in South Africa to answer the question on who is poor. There remains a knowledge gap on the exact determinants of poverty and inequality, and yet it is the kind of information that policymakers need (Statistics South Africa, 2008).

1.4 Objectives of the study

The purpose of this study was to articulate the drivers of poverty and inequality using life circumstances and service delivery and to relate the changes in poverty and inequality to the performance of government. The specific objectives for this study were:

1. To interrogate the key determinants which have influenced poverty and inequality in South Africa since 1994.
2. To investigate how the predictors of life circumstances and service delivery changed across the population in 2007.

1.5 Research questions

The main aim of this study was to interrogate the factors that have influenced poverty and inequality in South Africa in the post-apartheid period. It was supported by the following sub-questions:

[1] What changes have occurred in the living conditions of the South African population since 1994?

[2] How big are the disparities in life circumstances and service delivery in South Africa across the population since 1994?

[3] What are the predictors of life circumstances and service delivery in South Africa as at 2007?

1.6 Significance of the study

In the course of interrogating the key determinants of poverty and inequality since 1994, a multivariate analytical approach was developed. The study identified changes and identified factors that have influenced these changes among South Africans since the dawn of democracy. Second, the study investigated changes in living conditions of the population in relation to service delivery in post-apartheid South Africa.

While many researchers, including Bhorat (2006), Everatt (2003), Leibbrandt, Woolard, Finn and Argent (2010), Magasela (2005), Meth (2006) and Van der Berg (2002), have referred to the ultimate state of the population in relation to poverty and inequality, not much has been done to understand the underlying socioeconomic factors of the disparities observed across the population (Alkire et al., 2011).

The research analysed the output indicators that have influenced levels of poverty and inequality. The study begins with understanding the life circumstances across the population and the changes in living conditions and disparities in access to services.

The methodological contribution of this research was to introduce a multidimensional approach (Statistics South Africa, 2014; Jansen et al., 2015) for measuring poverty and inequality, which provides a comprehensive understanding of selected demographic, life circumstances and service delivery indicators.

Measures of education, skills and educational attainment are related to human capital theory. Employment and labour market dynamics show the effects of the dual labour theory (Taylor et al., 2012). Both the human capital theory and dual labour theory are also relevant for a broader understanding of the key indicators that have influenced poverty and inequality in South Africa for the past twenty-two years, still within the theoretical framework of poverty. The current level of availability and quality of statistics lends itself to support integrated measurement, using a multidimensional approach.

1.7 Analytical framework of the study

Based on an understanding of the multiple indicators, poverty and inequality have been measured using alternative integrated statistical methods. Table 1.1 represents the analytical framework of the study. The description and analysis of the life circumstances and service delivery formed the first part of the analysis. This was followed by the predictive analysis of the indicators developed to investigate how changes in life circumstances and service delivery feature across the population.

Multivariate regression models were applied on the life circumstances and service delivery indicators as dependent variables. Demographic indicators were used as independent variables. Principal component analysis was used complementary to multivariate analysis to confirm correlations and relationships and the extent of influence of the independent variables on the dependent variables. The developed analytical framework of this study forms the basis for the multidimensional approach for poverty measurement to provide a comprehensive picture of the poor in the society and across the population in South Africa (Statistics South Africa, 2014).

Table 1.1: Analytical framework for the study

<table>
<tr><th colspan="2">INPUTS</th><th colspan="2">OUTPUTS</th><th>OUTCOMES</th></tr>
<tr><td colspan="2">A: LIFE CIRCUMSTANCES</td><td colspan="2">CONDITIONS OF LIFE</td><td rowspan="5">POVERTY AND INEQUALITY
Conclusions based on the inputs from the descriptive statistics and predictive analysis
Story of the conditions of lives for the population of South Africa since 1994</td></tr>
<tr><td>Education
Employment
Income
Household goods/assets</td><td>DESCRIPTIVE STATISTICS</td><td>A: Associations of life circumstances against demographic indicators</td><td>PREDICTIVE ANALYSIS</td></tr>
<tr><td colspan="2">B: SERVICE DELIVERY</td><td rowspan="2">B: Service delivery disparities against demographic indicators</td><td rowspan="2">PREDICTIVE ANALYSIS</td></tr>
<tr><td>Access to water
Access to refuse removal
Access to electricity</td><td>DESCRIPTIVE STATISTICS</td></tr>
</table>

Own analytical framework, 2014

1.8 Scope and content of the study

The scope and content of the study are clearly outlined in the theoretical, research and analytical frameworks. Applying the multi-theoretical approach, the structural theory of poverty has been chosen against the other theories. The main pillars are the individualistic deficiencies, cultural belief system, political economic distortions, geographical disparities and cumulative and circumstantial origins (Bradshaw, 2006).

The conceptual framework of poverty and inequality in this study is founded in the structural theoretical framework. The research framework of the study is premised on positivism and critical realism paradigm shift. The paradigm sheds light on expanded measures of poverty including external factors using integrated statistical models.

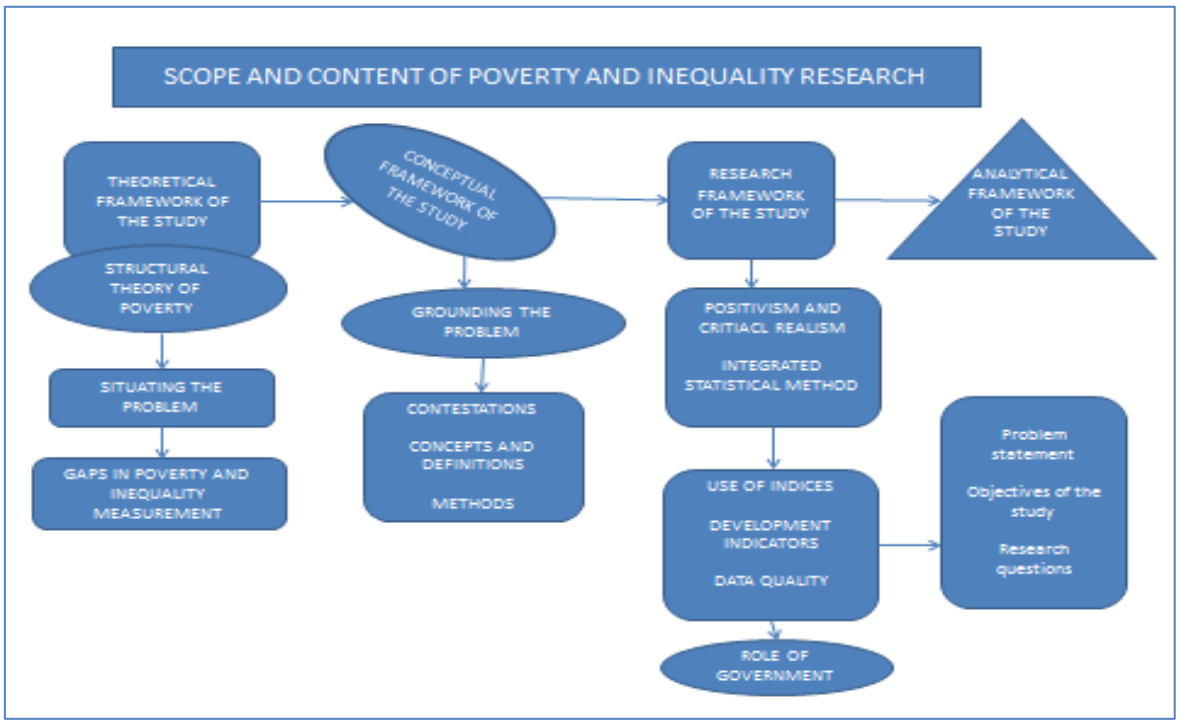


Figure 1.2: Scope and content of the study

1.9 Conclusion

Situating the problem within the structural theory of poverty, the main focus of this study was to develop a multivariate analytical approach to contribute to measuring poverty and inequality. In order to achieve this purpose, the research investigated and interrogated the key determinants that have influenced poverty and inequality in South Africa since 1994. The new measures should assist the country to address poverty and inequality through an improved understanding of the correlates of poverty and inequality, and how development indicators and access to services manifest across the population.

The scope for this study is quantitative using multivariate statistical methods within the positivistic and critical realism research framework. The study is mainly descriptive and correlational, with descriptive statistics and predictive analysis used as the main analytical components. This study measured the progress made in improving the livelihoods of South Africans, using purposefully constructed measures of life circumstances and service delivery.

CHAPTER TWO

LITERATURE REVIEW

This chapter examines literature on poverty and inequality measurement. While the evolution of studying poverty and inequality dates back to the 19th century, the challenge of contestations around concepts, definitions, lack of consensus and methods for poverty and inequality continues to exist (Magasela, 2005; Jansen, 2015).

The literature review sheds lights on the work done to measure poverty and inequality in South Africa and reviews empirical research undertaken to date. Theoretical considerations on structural poverty are highlighted in relation to the literature that has been used for this research.

Household surveys are designed to determine progress in developmental programmes in South Africa. Data from these surveys provides comparative analysis on multiple facets of the living conditions of individuals and households as well as on the quality of services delivered to the population (Monyai et al., 2015).

The need for undertaking this research is motivated by the much-required move from unidimensional to multidimensional measurement of poverty (Grusky et al., 2006). The literature review highlights the gaps in poverty and inequality measurement, and how they relate to understanding the determinants of these phenomena.

This research interrogated the key determinants of poverty and inequality in South Africa since 1994 using life circumstances and service delivery indicators to provide a comprehensive picture of factors that have been affecting poverty and inequality across the population (Monyai et al., 2015). Multidimensional measurement of poverty uses a range of development indicators to capture the complexity of poverty to provide a useful tool for measuring performance of government in implementing programmes and policies to fight poverty (Statistics South Africa, 2014).

2.1 The concept of poverty

Poverty has often been measured using unidimensional measures such as income and expenditure. This approach has missed the multiple aspects that constitute poverty in its multidimensional form (Statistics South Africa, 2014). Poverty ties in with the structural theoretical framework, through the introduction of factors or development indicators to dissect and expand on the relevance of demographic transition. The gap in the unidimensional poverty measurement approach remains in relation to missing the understanding of life circumstances and service delivery (Statistics South Africa, 2009).

Defining poverty has been a highly contested area of research in South Africa. With the failure to define poverty (Everatt, 2003), measurement has become even more complex. This gave rise to the issue of multi-theoretical approaches in measuring poverty and a notion of mixed methods emerged. There are different definitions of poverty by different authors. The review of literature reveals that poverty has been defined and can be measured in many ways using the multidimensional approach (Statistics South Africa, 2014).

Poverty can be defined as hunger, lack of shelter, being poor and not able to see a doctor, not having access to school and not knowing how to read, not having a job, fear of the future, living one day at a time, losing a child to illness brought about by unclean water, and being powerless, lacking representation and freedom (World Bank, 2006). Statistics South Africa conceptualised and defined poverty as the denial of opportunities and choices most basic to human development, to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect from others (Statistics South Africa, 2002, 2006a).

These definitions support the argument that poverty is a multidimensional phenomenon that is very complex (Statistics South Africa, 2014). Following a definition of poverty as the deprivation of capabilities, Woolard and Leibbrandt (2006) suggested that the poverty line should be set at a level of income that enables individuals to achieve certain capabilities, such as a healthy and active life and full participation in society (Woolard and Leibbrandt, 2006).

The poverty line can be used to separate the poor from the non-poor by specifying the level at which these capabilities are attained (Van der Berg et al., 2007). Therefore, poverty lines form the basis for poverty analysis, but they are not the only measures of poverty (Statistics South Africa, 2013).

Magasela (2005) and Everatt (2003) have argued that, for post-apartheid South Africa, the definition and selection of a set of appropriate poverty measures presents an opportunity for a participative national expression of the values, ideals and aspirations, which informed the hard-fought battle against the exploitation and oppression of the majority of South Africans. Although expertise remains important, as important is the process of engaging with the underlying issues involved in this exercise and developing a shared approach to the broader problems of poverty and inequality in South Africa (Magasela, 2005).

Poverty analysis and research have evolved over time. This has been the focus of social theory and research methodologies towards enhanced approaches to understand the issues of poverty and inequality. "The impact of definitional imprecision was and remains considerable, affecting development programmes while fuelling highly ill-tempered and ultimately rather shallow debate" (Everatt, 2003, p. 79).

The motivations for using multidimensional approaches in measuring poverty include the fact that it manifests itself in economic, social and political ways across the population. Some methods of multidimensional measurement of poverty can be applied to inform additional purposes in policy and development, including targeted interventions and conditional transfers (Alkire et al., 2011).

This thesis adopted the definition of Statistics South Africa (2002b) as it is related to structural theory of poverty, the current South African research, discourse and policy dialogue. The multidimensional nature of poverty can be unpacked in the context of the South African population. Denial of opportunities relates to marginalisation of some population groups. Choices most basic to human development are shaped by circumstances surrounding an individual human development path (Andy, 2011).

A long, healthy creative life is related to what individuals attain in education and job opportunities (Maliki et al., 2012). Enjoying a decent standard of living may relate to access to income, household goods and quality service delivery. Freedom and dignity relate to a psychosocial sense of self in society. Lastly, self-esteem and respect from others relate to the benefits of being out of poverty and the ability to compete for resources (Andy, 2011). Poverty has been approached as a phenomenon of multiple simultaneous deprivations and based on that, the question of identifying the poor ('who are the poor?') is important (Lustig, 2011).

Historical measures of poverty in South Africa include a Participatory Poverty Assessment (PPA), which was undertaken in 1997. From that work, the poor characterised their poverty as a feeling or perception of alienation from kinship and the community (subjective poverty). The work further indicated that the elderly without care from younger family members would have been defined as poor, even if they had an old-age state pension (Woolard & Leibbrandt, 2006). Some young single mothers, without the support of older kin or the fathers of their children, were also perceived or defined as being poor (May, 1998). Therefore, as many people progressed in development, many poor people remained behind.

According to Morduch (2005), the best-known poverty measure is the headcount. It is the share of a population, which falls below an agreed poverty line. The headcount calculation is based on ranking individuals in a population in order of their command over resources, from 1 to N, where person 1 has the least resources and person N has the greatest (Morduch, 2005). The aforementioned headcount is simple and clear. It is the most commonly calculated poverty measure that is least contested in countries. The headcount remains a highly valuable measure of poverty even though, when used on its own, it has proved to be a poor guide for resource allocation.

To make the approach more useful, the headcount for 'sub-poverty' lines at lower thresholds than the overall poverty line should be calculated (Morduch, 2005). Therefore, development of poverty lines for the country is important as a stepping stone to measures of poverty beyond the headcount.

2.2 The concept of inequality

Measuring inequality remains crucial to the work done alongside poverty measurement. Per capita income and income distribution among the citizenry form the basis for such measurement. Levels of inequality are measured by the Gini coefficient as a measure of monetary status. The broader analysis of inequality can facilitate measurement of the ability of individuals and households to command and compete for resources necessary for a decent standard of living (Andy, 2011). Several studies have found that labour market factors are important in explaining inequality (Statistics South Africa, 2014; Van der Berg et al., 2007).

The Gini coefficient is used as a measure of the distribution of the national income. In a perfectly equal society, 10% of the population is expected to receive 10% of the income, 20% of the population is expected to receive 20% of the income and so on (Van der Berg et al., 2007). For such a society, the Gini coefficient is zero. The Gini score for South Africa was under 1 in 2001 and has increased to 0.69 in 2011 (Statistics South Africa, 2004, 2013).

There is an emerging argument by Van der Berg et al. (2007) that the Gini coefficient has been higher among African households than among non-African households. Increasing inequality continues to be an issue of concern for policymakers (The Presidency, 2011) and social scientists.

Evidence exists to highlight the importance of using life circumstances indicators as a cornerstone for poverty and inequality measurement and research (Statistics South Africa, 2002a). The micro-picture, as determined by output indicators, forms a basic building block for macro-analysis of population dynamics, using life circumstances and service delivery as outcome level indicators (poverty and inequality) (Triegaardt, 2007).

From their analysis of an income dynamics survey conducted in KwaZulu-Natal, Leibbrandt and Woolard (2012) found that labour market activities can be significant contributors to households' movement into and out of poverty and inequality.

Based on the 1995 Income and Expenditure Survey (Statistics South Africa, 2002b), the wage and salary income were the components that contributed most to overall income inequality (Bhorat et al., 2007). This further supports the value of monetary measures for inequality.

The literature review for this study takes the proposed Grusky et al. (2006) framework which guides the fundamental steps as identifying the dimensions by developing a list of indicators beyond wealth and income; characterising the multidimensional space through developing new methods for multidimensional measurement of poverty and inequality in an expanded manner.

These methods shed light on social groups, including race, gender, ethnicity and classes that exist in society. Remediation in a multidimensional world entails devising new approaches that are remedial and viable for expanded definitions of poverty and inequality. This requires an understanding of the manifestation of poverty and inequality in spatial segregation and causality (Grusky et al., 2006).

2.3 Theoretical considerations

This study has adopted the structural theoretical framework for measuring poverty and inequality, and the evolution of addressing poverty using a multi-theoretical approach is rooted in different perspectives. Historically, poverty surfaced in public consciousness for several decades (Austin, 2006). In South Africa, it is embedded in the history of the country, especially in relation to the apartheid legacy, which promoted segregation and marginalisation (Leibbrandt et al., 2010).

The evolution of structural poverty rests on the understanding that urban poverty emerged during the 19th century and it mainly related to immigration and industrialisation; urban and rural poverty emerged in the 1930s and it related to the stock market crash and depression at the time; the response of civil rights to poverty and discrimination emerged in the 1960s, including the war on poverty; the economic boom in the 1990s emerged alongside the welfare reforms; and the 21st century focus has been on global poverty (Austin, 2006).

The developmental characteristics of the South African society are related to the current state of poverty and inequality, supporting an argument that poverty is structural (Austin, 2006). The importance of the environment on levels of poverty and inequality cannot be overemphasised. The environment of poverty has always been marked by unstable conditions and lack of capital, both social and economic (Chakravarti, 2006).

Marxists theorise that poverty and inequality should be seen as functional components of a capitalist mode of production. Capitalism necessarily produces in-egalitarian social structures (Peet, 1975). Inequality can be transferred from one generation to another, as has been observed in South Africa. This can be observed through an environment of services and opportunities that surrounds each individual in society (Chakravarti, 2006). Theories and available evidence point towards the structural nature of poverty in South Africa.

A number of theories deal with relationships between skills, employment and earnings. Taylor et al. (2012) define human capital theory as crucial to the proposition that supports the argument that skills increase the future earnings and directly link higher skill to higher productivity.

Based on this argument, skills are associated with a greater probability of employment, higher earnings and income, and a lower risk of poverty can be attained. However, the skills, employment and earnings relationships are challenged by a number of issues such as market failures. The extent and nature of labour market segmentation as well as issues around the demand for labour and skills have an influence on macro-economic issues (Taylor et al., 2012).

As a highly contested area of research, theories of poverty and inequality are bound by competition of ideologies and multiplicity of understanding. These elements can be observed in the development and implementation of anti-poverty strategies and community development programmes (Andy, 2011).

Dependency theories in the late 1960s and early 1970s formed the theoretical thrust of dependency theories. The basic needs approach in the late 1970s shifted developmental emphasis from a singular concern.

The alternative modes of production (AMP) perspective in the 1980s was counter-poised against the foregoing different schools of thought. Under this perspective, contemporary developing and underdeveloped societies are essentially characterised by the coexistence of sharply contrasting sectors (Constantinos, 1998).

The development theory and social theory are the basis for measuring and dealing with progress in society. Poverty and inequality are the outcomes at population level and can be understood within the structural theoretical framework.

The conceptual framework is based on the understanding that the broad development theory underpins the journey to poverty and inequality measurement from a macro-point of view, while policy environment and population dynamics inform the micro-picture of development across society (Durkheim, 1893).

The meta-theoretical reflections further provide a platform for understanding the macro-economic issues such as human capital, dual labour, institutional building and political economy (Piketty, 2014). Poverty and inequality research has been founded on traditional and conventional methods. These contemporary methods did not respond to the fundamental changes in the basic structure of poverty and inequality.

The conventional methods and approaches have mainly been rights based and driven by social mobility modelling, which never proved to improve the intellectual ability of decision-makers to respond to emerging and modern changes (Grusky et al., 2006).

2.4 Defining the dimensions for poverty and inequality measurement

The structural theory has defined the five pillars for measuring poverty and inequality. The dimensions for this study are defined by coming up with the list of indicators essential for understanding poverty in its multidimensional form. The problem is grounded on the historical limitations (Van de Ven, 2007) for poverty and inequality measurement. An expanded approach used life circumstances and service delivery measures as the conceptual analytical basis for poverty and inequality. The conceptual framework is informed by the complexity of poverty and inequality in relation to definitions, measurement and interpretation (Magasela, 2005).

The use of alternative integrated statistical methods produces information for addressing poverty and inequality outcome issues. Muller-Merbach (1992) argued that the belief in the empirical existence of social wholes or collectives, which may be described as naïve collectivism, has to be replaced by the demand that social phenomena form the basis for understanding the outcomes of development.

Muller-Merbach (1992) further argued for the approach that understanding issues around individuals and households can allow for better analysis of the collective population dealing with the complex outcomes such as poverty and inequality. The rationale for measuring poverty and inequality in the context of development indicators is informed by the need to understand the micro-social status of society before constructing a macro-social or macro-economic picture.

Wright (1999) identified two meta-theoretical foundations. These were anti-individualism and combinatory structuralism. The paper emphasises the differences between Tilly's approach to social inequality and what he characterised as individualistic approaches. In the latter, he argued that central causes of social inequality are seen as operating through the attributes of individuals (Wright, 1999). Attributes of the individuals are also observed within the framework of the cultural theory of poverty (Bradshaw, 2006).

Mapping the past, the present and the future remains the challenge of South Africa in addressing poverty and inequality research. Using statistics as a basis for an integrated model of analysis in this complex area of research, this thesis supports Marks' (1992) criticism of postmodern and interpretive challenges to positivism, which is regarded as a purist approach informed by scientifically or mathematically sound facts by incorporating pragmatism into sociological theory (Trochim & Donnelly, 2008). Critical realism advocates for understanding that this study is about people out there (Van de Ven, 2007) when statistical methods are applied.

The structural theoretical framework has formed the basis for the conceptual framework of this study to bridge the current gap between expanded measurements of poverty.

2.4.1 Conceptual framework

Grusky et al. (2006) have identified that the emerging poverty and inequality landscape is attributable to external factors such as increasing economic disparities, regional disparities in living standards, entitlements that exclude individuals from seeking employment, economic production dynamics and political participation.

What can be observed now in South Africa is an overwhelmingly dominant (but now in economic and political terms) modern sector. The population is geographically constituted in both urban (industrial) sectors and rural enclaves; the country has engaged in a large-scale extra-active and cash crop agricultural sub-sector (Ozler, 2007). This is still evident as a skewed division of labour in South Africa that perpetuates the dual labour theory, including the effects of the second economy.

South Africa has had an overwhelmingly dominant (in population terms) traditional sector. This population has been geographically constituted in the rural population and distinguished by its predominant engagement in survivalist, low-productivity subsistence agriculture (Woolard & Leibbrandt, 2006). The growing appreciation of the negative externalities of poverty and inequality provides a better support for

the structural framework of poverty. The newly found concerns of poverty and inequality measurement are seen to be consequentialist in nature (Grusky et al., 2006), as they take into account the external factors through which poverty and inequality manifest themselves in society.

The conceptual framework provides an overview of how this study looked at different areas related to poverty measurement, using the output indicators within the policy environment of implementation. The measures developed facilitate analysis towards measuring outcome indicators of poverty and inequality from improved living conditions indicators, in the monitoring and evaluation environment.

This framework maps the development trajectory of South Africa from the RDP in 1994, to a macro-economic strategy policy called GEAR (The Presidency, 2003), as well as broad developmental issues such as the anti-poverty strategy, population policy and the service delivery programmes as depicted in Figure 2.1.

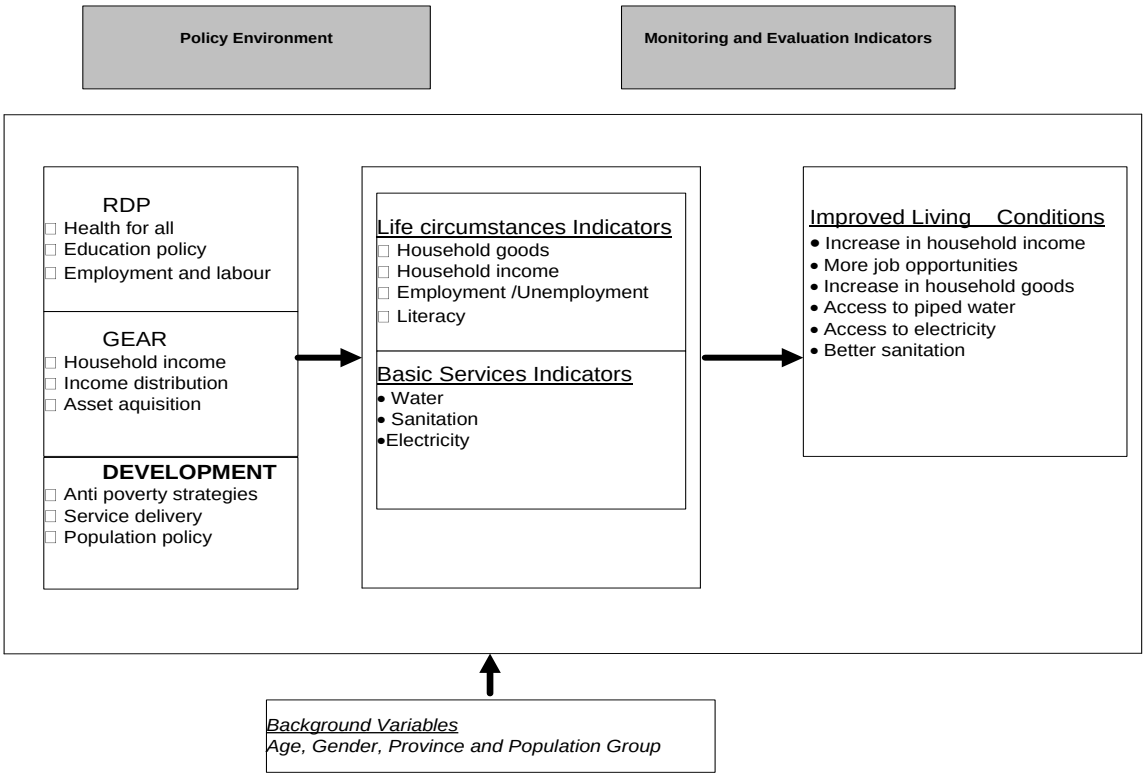


Figure 2.1: Conceptual framework of the study

2.4.2 The research framework

In constructing the scope and content of the study (Van de Ven, 2007), this thesis recognises the argument that research continuously challenges the creation of new, alternative and better theories to inform improved and relevant methodologies. Such new methods can be created with robust research in poverty and inequality in South Africa, based on the current wealth of data available.

In human development and other social and behavioural sciences, it is difficult to determine how conclusively the evidence supports a theory (Van de Ven, 2007). Using statistical and mathematical methods, it can be considerably easier to decide if the evidence is harmonious with the theory.

The research framework was based on the positivistic paradigm and critical realism to measure changes and disparities in the population. This is an important tool, which facilitates a logical understanding of the indicators generated during the analysis of the various datasets as well as their interrelationships (Chao-Ying et al., 2002).

Positivism is defined as a trend in bourgeois philosophy that can be used to declare natural (empirical) sciences to be the sole source of true knowledge and rejects the cognitive value of the philosophical study. This shows a purist approach to research that can only depend on empirical evidence (Van de Ven, 2007). Positivism rejects metaphysics and theism and it can be regarded as another term for logical positivism. It is regarded as an approach whose basis is founded in evidence that can be tested and is factual, both scientifically and mathematically (Trochim & Donnelly, 2008).

The two main difficult-to-test propositions that persist are first, the discussions of whether social classes and more finely graded groupings, for example income categories, are fundamental constructive units of inequality regimes. Second, the discussions of how much inequality and what types of inequality, if any, are functional or desirable (Patterson, 2006).

It is critical to understand the state of the population based on life circumstances and service delivery indicators to inform and enhance debates and arguments on poverty and inequality. Positivism complemented by critical realism was chosen as the umbrella research framework for this study, since it is still very much alive in the current measurement of development theories. The role of positivism has been observed while politics of methods in human science continue to provide remarkable comparative assessment of the variations of positivism and epistemologies in contemporary human science (Steinmetz, 2005).

Social theory transition has shown precipitation in its evolution. The social research evolution from Marxism, positivism and post-positivism to critical realism (Van de Ven, 2007) shows the need to explain mass poverty and inequality within further critical realism. The development theory provides a platform for understanding modernisation, dependencies, world economy, institutional building as well as the capacity of government to deliver and implement poverty and inequality alleviation programmes (Andy, 2006).

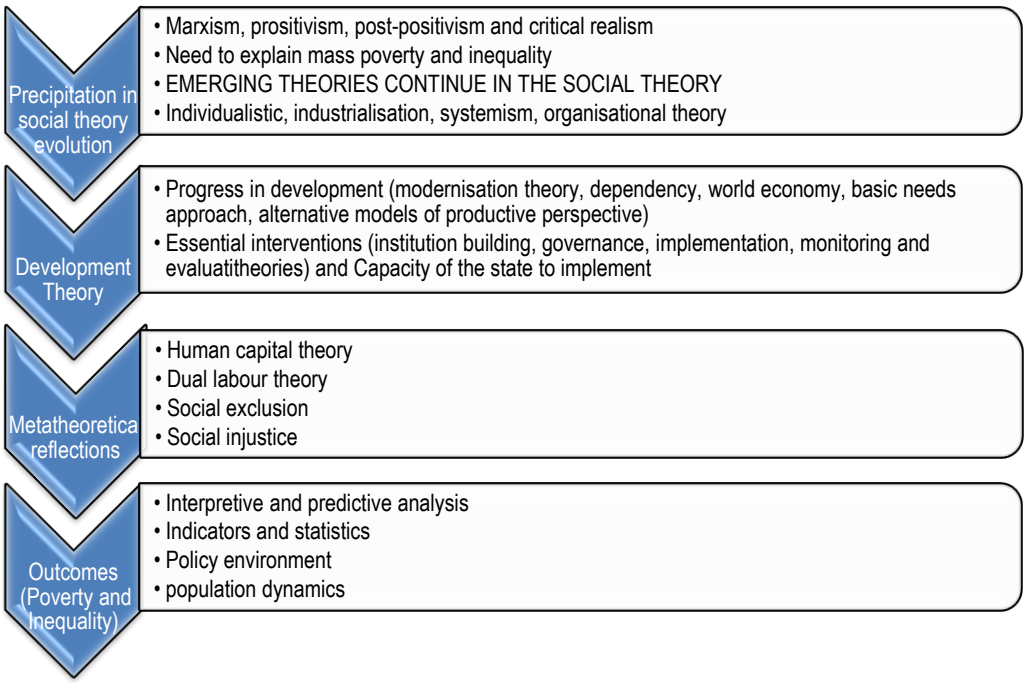


Figure 2.2: Research framework of the study

Critical realism has been adopted as a paradigm shift to complement positivism in this thesis. It has been introduced by Van de Ven (2007), based on its ability to create knowledge for social science and practice. The basis for critical realism is to highlight the limited understanding about the real world out there. The paradigm advocates for the knowledge that complex reality also needs the use of multiple perspectives as all facts and observations from data are based on theories (Van de Ven, 2007).

Research and measurement of poverty and inequality cannot be conceptualised outside a broader framework of development. In Chapter 3, the conceptual framework defines how the entire research was developed, including what informed the research problem, the design of the study, data collection methods, and strategies behind data analysis. On the other hand, the theoretical framework defines the multiple theories behind the study. These included Marxism for the theoretical framework and positivism and critical realism as the main paradigm for the analytical approach.

2.4.3 Context for poverty and inequality in South Africa

Two distinct developmental problems that still characterised South Africa ten years after democracy were poverty and inequality (Landman, 2003). In public discourse, the two (poverty and inequality) are normally linked and treated as an expression of the same problem. In reality, they are very different and fundamentally distinct and these differences have important public policy consequences (Landman, 2003).

Poverty and inequality remain the key developmental problems in social, economic and political terms. In post-apartheid South Africa, fighting the legacy of apartheid through reducing poverty, and reducing inequality and underdevelopment has been a central objective of the government development agenda (The Presidency, 2011). The achievement of this objective requires good quality data across government departments (Magasela, 2005; Van der Berg et al., 2007; Woolard, 2002) and within the broad national statistics system for the country.

Throughout the post-transition period, spanning the implementation of RDP, GEAR and the Accelerated and Shared Growth Initiative for South Africa (ASGISA), a consistent policy priority has been to reduce poverty and inequality (Van der Berg et al., 2007). The new National Development Plan 2030 has reiterated the need to deal with poverty as a priority for the developmental trajectory of the country (The Presidency, 2011). It is difficult for the majority of the population to achieve an acceptable standard of living.

There is a long way to go to achieve lower levels of poverty and close the inequality gap in South Africa (Van der Berg et al., 2007). At the centre of the confusion about the real status of poverty and inequality in South Africa, is the issue of consensus around defining poverty. Magasela (2005) has argued that the lack of official measures has led to confusion and has certainly fed into the development of differences and contestations around the levels of poverty in the country.

2.5 Characterising the multidimensional view

In the Alkire Foster method (using the multidimensional poverty index), the indicators used differ from country to country. They should be identified in a manner that ensures that they fit the society and situation of each country (Statistics South Africa, 2014).

The structural theory highlights the influence of external factors such as economic growth and demographic transition as drivers of change in society (Austin, 2006). The relational perspective to poverty and inequality is rooted in the understanding of life circumstances and service delivery dynamics (Monyai et al., 2015).

The basis of the structural theory, which supports the multidimensional approach to poverty measurement, is that cultural beliefs are a characteristic of value structures across the population (Alkire et al., 2011). Individual deficiencies, political economic distortions observed through disparities in income and the ability to acquire household goods, geographical disparities and circumstantial origins are pillars of the structural poverty theory (Bradshaw, 2006).

2.5.1 Creating a landscape of poverty measurement

Both the theoretical and conceptual frameworks of this study highlight the complexity of measuring poverty and inequality within the current human sciences environment (Van de Ven, 2007). While there are peculiar patterns and comprehensive data on the living conditions and studies around poverty and inequality, challenges in the definitions, research agenda and the relationships between poverty and inequality measurement and development theory continue in the policy discourse for South Africa (Statistics South Africa, 2014).

History has shown that the interdependence of institutions in society and the way in which they interact with cultural and social unity remain crucial (Durkheim, 1893). Based on the earliest principles of the modernisation theory, people can develop and change their society themselves (Constantinos, 1998). The recent development programmes in South Africa, such as *Vukuzenzele* and the many civil society organisations that are in place, support this argument.

Measuring poverty and inequality should be based on output of socioeconomic indicators as shaped by life circumstances and service delivery disparities. Evolution of the methodological paradigm shift over time (Usher, 1997) cannot be overemphasised. Building blocks for poverty and inequality measurement should be based on an understanding of how socioeconomic indicators play themselves out across the population before measuring the outcome level indicators such as poverty and inequality (Leibbrandt & Woolard, 2012).

Based on the human capital theory, the most recent models attempt to allow for the fact that not all people are likely to gain equally through education (Taylor et al., 2012). Educational attainment is the result of people's perceived probability of entering a range of different occupations in the future, and their ability in those occupations (Van der Berg et al., 2007). Hence, educational attainment is a consequence of occupational (and future earnings) expectation, and a model in which individuals' educational attainments depend on their expectations of future earnings is presented (Taylor et al., 2012).

Conversely, other models support the fact that educational attainment is at least partly driven by unobserved characteristics that also affect people's labour market performance (Van der Berg et al., 2007); as more able individuals choose to acquire more education, the estimated impacts of education on earnings are typically overestimated. Improving the education of low-skilled individuals has little effect on their earnings and a limited impact on poverty and inequality (Taylor et al., 2012).

Demand for labour becomes a determinant for changes in the class system. This can be observed in a continued systemic need to ensure that economies produce and reproduce an industrial reserve army in the American cities (Taylor et al., 2012). Historical knowledge is that poverty and inequality cannot be eradicated without a fundamental change in the mode of production (Peet, 1975). This remains true even in the South African population in the 20th century, where high levels of unemployment are a result of an unchanging mode of production (Ozler, 2007). The debate around the high levels of unemployment in South Africa continues as the levels increase (Statistics South Africa, 2014).

Currently, the global social and economic fraternity appears to be driven by the academic group that depends mainly on quantitative methods of analysis for poverty. Unfortunately, this is not to the benefit of the poor themselves (Everatt, 2009).

Contestations in poverty measurement have divided the country into two hostile camps, the poor and the rich. The change of heart manifests itself in the movement away from empathy and consensus on the most needed massive state intervention to a more judgemental attitude (Everatt, 2009). The research community in South Africa continues to measure poverty and inequality through income only (Statistics South Africa, 2013). While not all aspects of the poverty definition are dealt with as individual inputs into this study, the missed historical evidence has been that the multiple factors are bound together so that they can be comprehended at once, in a positivistic approach (Kelly, 1955).

Development, as used in this study, deals with the alleviation or the eradication of poverty and it is inter-related with other problems of underdevelopment. The development theory is a conglomeration of theories about how desirable change in society is best achieved. Such theories draw on a variety of social science disciplines and approaches (Peet & Hartwick, 1999). Theories of development are motivated by the need to explain mass poverty among other phenomena.

There is agreement in South Africa, among most analysts, that even if poverty seems to have declined, due to the provision on social grants (Van der Berg, Louw & Du Toit, 2007), it remains high.

2.5.2 Critical overview of poverty and inequality measurement

Slowly declining poverty and high levels of inequality co-exist in South Africa today (Statistics South Africa, 2013). With monitoring and evaluation of poverty and other development programmes in South Africa, measurement has become the order of the day. Use of development indicators and government-wide monitoring and evaluation systems remains the bedrock for measuring the performance and progress in development (The Presidency, 2005b).

Based on the theoretical reflection comparing different explanations of class inequality and poverty, society is currently experiencing a widening gap between the rich and the poor (Morales, 2008). The argument is that the rich are getting richer and the poor are getting poorer. The wealthy are gaining more money while the poor are in an ever-worsening situation. Wealth is not equitably distributed to every living individual (Morales, 2008).

Poverty is multifaceted as it includes hunger, unemployment, exploitation and lack of access to services. It is attributable to vulnerability (Andy, 2011), to crisis as well as to homelessness and even violence (Woolard & Leibbrandt, 2006). Many of the aforementioned issues may not be directly related to not having enough money, but they provide a broader picture around ignoring the non-material aspect of many experiences of poverty across the population. The poor are not concerned exclusively with adequate income and consumption (Woolard & Leibbrandt, 2006).

It is critical that measurement of poverty and inequality is not only based on money metrics. Van der Berg argues that shifts in state expenditure and service delivery have ensured that South Africa's public spending is currently targeted at the poor, but inefficient social delivery is still widespread due to a lack of managerial skills and corruption. Poverty is likely to decline, but inequality will remain high, while the deracialisation of the middle class will continue (Van der Berg et al., 2007). Integrated statistical methods for poverty and inequality provide a bigger picture on these outcome indicators for development.

2.5.3 Measuring inequality

Inequality is most often defined and measured as the distribution of income across households in the population (Van der Berg et al., 2003). It is unfortunate that this measurement is focused mainly on the money metric aspect due to measurement and definitional issues. Its contribution makes more sense in what is defined as absolute poverty (Statistics South Africa, 2013).

The measure of inequality is in line with the understanding of many researchers in the country to date. Inequality has no bearing on measuring other aspects of poverty such as subjective and relative poverty. The uncertainty has historically been the result of an absence of good and reliable data that is up to date (Van der Berg et al., 2007). However, the current availability of data can provide better information on poverty and inequality. Inequality can be related only to income distribution across the population, while poverty can be related to many aspects of population development.

The distinction between the definitional aspects of poverty and inequality should guide the discourse and inform definitional consensus in future. Money metric measures of welfare need not be discarded, and measures of income or expenditure remain important to understand. These measures also provide the best objective proxy for poverty status (Baulch, 1996, as cited in Woolard, 2002; Van der Berg et al., 2007).

The money metric approach excludes access to services and other basic needs as inputs in the statistical methods for inequality measurement. Living standards and their outcomes are closely correlated with the racial distribution of the population in South Africa (Woolard & Leibbrandt, 2006). Based on the standard expenditure-based poverty measure with a specifically created composite measure of deprivation, there is a strong overall correlation between expenditures and levels of deprivation, but the correlation is much weaker among the worst-off South Africans (Van der Berg, 2007).

In general, the deprivation measure finds more Africans, rural dwellers, members of de facto female-headed households, and members of smaller households deprived than expenditure poor (Klasen, 2002; Woolard & Leibbrandt, 2006). The Gini coefficient has been measured at 0.69, based on income data in 2011 (Statistics South Africa, 2014). This is a sign of worsening inequality across the South African population between 2007 and 2014.

Many developing countries would have a lower Gini coefficient than South Africa, thus a lower level of inequality. It is inevitable that a society in economic take-off will experience rising inequality, while in the transition from poor to less poor (Landman, 2003). Apartheid in South Africa officially ended with the democratically held elections in 1994, leaving in its wake a population with vast inequalities across racial groups (Van der Berg et al., 2007).

The World Bank argues that much of this poor record was attributable to the legacy of apartheid, which produced very high inequality in South Africa. South Africa remains one of the countries in the world with high levels of income inequality (World Bank, 2006) despite the multiple, but fragmented interventions in eliminating poverty and income inequality.

It has become clear that expenditure proved to be a more reliable measure than income in estimating economic wellbeing (Van der Berg et al., 2007). Income and expenditure surveys 2005/06 and 2010/11 (Statistics South Africa, 2007; 2012b) have been the official providers of information for this area to date, with many prediction and regression models from different datasets.

2.5.4 Unidimensional poverty measures

A long-term outlook for income distribution has been shown using money metric measures that poverty has declined in the post-apartheid era, especially after 2000 (Meth, 2006; Everatt, 2003). The reduction was largely attributable to implementation and dramatic expansion of social grants expenditure by government from 2002 onwards (Van der Berg et al., 2007). This improvement was also supported by the improved access to service delivery (Statistics South Africa, 2012c).

A rapid decline in asset poverty was observed even before the decline in money metric poverty. Although reductions in poverty have been substantial, it is critical to note that aggregate inequality was on the increase during the 1990s (Van der Berg et al., 2007). As an upper middle-income country with a per capita GNP of $3,020 in 2000, South Africa fared extremely poorly on international comparisons of poverty and other social indicators (Woolard & Klasen, 2005; World Bank, 2001).

South African poverty is apparent to the human eye as evidenced by mushrooming informal settlements, shacks, homelessness, high levels of unemployment, increasing casual labour, poor and diminishing infrastructure and unmet need of access to quality basic services (Statistics South Africa, 2012c; Woolard and Klasen, 2005). Therefore, it cannot only be measured using income and expenditure alone.

The structural form of poverty is evident, beyond money metric measures. Poverty alleviation efforts are best founded on a sound diagnosis of the underlying causes and dimensions of poverty (Lanjouw, 1997). In order to understand changes in the social structure of society, particularly trends with regard to mobility, a number of factors need to be taken into account. These include the measurement of poverty in its various dimensions, such as education, trends in employment, the interface between household demographics and income, as well as the composition of various income groups within society as a whole (Austin, 2006).

2.5.5 Using poverty lines as measures of poverty

On setting the level of a monetary poverty line as a poverty measure, work was done between Statistics South Africa and the National Treasury in 2007. This work has helped to answer only one part of how to gauge poverty and has added value on how to define what halving poverty means.

The challenge with this poverty measure is that it is but one of the measures of poverty. Alone it cannot answer questions beyond how many people are below the established poverty line (Statistics South Africa, 2014). The poverty headcount ratio measures the incidence of poverty, which is an important dimension of poverty; however, it gives no indication of the intensity of poverty.

The choice of poverty measure has significant policy implications, particularly insofar as specific targets for the reduction of poverty are part of government policy (Magasela, 2005). The purpose of setting a target poverty line is not only to evaluate outcomes but also to inform policy design and implementation.

The poorest people are highly unlikely to be lifted above the poverty line in the near future, and any increase in their incomes will have no impact on the poverty headcount ratio (Tregenna, 2011).

Given the important shortcomings of the poverty headcount ratio and the information about the intensity of poverty conveyed by the aggregate poverty gap, it is advisable that all the development interventions, including the RDP, GEAR and ASGISA's target of halving poverty, be framed not only in terms of halving the poverty headcount ratio but also in terms of halving the poverty gaps (The Presidency, 2007).

Setting a poverty line often receives the bulk of attention and intellectual effort in studies of poverty. It is expected that across different countries, regions, communities or even families, the identity of the poor, the degree of their poverty, and its causes will differ. It is important to understand the nature of poverty in a specific setting or country so that realistic policies for poverty alleviation in a given setting can be developed (Lanjouw, 1997).

A common component in virtually all approaches to poverty analysis is the setting of a poverty line as a starting point for poverty measurement.

Once a poverty line has been constructed and agreed upon, poverty rates can be used to conduct comparative analysis across groups and to monitor changes in poverty over time. The results can be used to inform policymaking. When comparisons of poverty rates are determined and used for different regions within a country, the analysis can provide evidence for targeting transfers or determining the best locations for development expenditure (Lanjouw, 1997).

The basis of this study was not to argue the poverty line but to ensure that it is understood as one of the many measures of poverty. Poverty measurement (who measures poverty and how?) in South Africa has remained a contested area over time. Tackling poverty in its many manifestations remains one of the main challenges (The Presidency, 2007).

In 1993, five different types of poverty lines were used to analyse poverty levels in South Africa, as shown in Table 2.1. A survey of literature and research on poverty showed that there were two commonly used and uniquely South African poverty lines (World Bank/SALDRU, 1995). These were the household subsistence level (HSL) calculated by the Institute for Planning Research at the University of Port Elizabeth, and the minimum living level (MLL) calculated by the Bureau of Market Research at the University of South Africa in 1995.

Both the HSL and the MLL were developed as absolute income measures of poverty, which, the literature argues, are minimalist definitions based on subsistence and the attainment of physical efficiency. There is also the approach of creating another form of poverty measurement referred to as the 'relative' measure of poverty. This measure selects cut-off points of 40% and 20% of households living below a selected poverty line to identify 'poor' and 'ultra-poor' households in the country. Ranking of households is based on adult equivalent income (World Bank/SALDRU, 1995).

Table 2.1: Comparison of selected poverty lines for South Africa

Types of poverty lines (in 1993)	R/month cut-off	% of population below the poverty line
1. Population cut-offs at the:		
- 40th percentile of households ranked by adult equivalence	301.1	52.8
- 20th percentile of households ranked by adult equivalence	177.6	28.8
2. Minimum per capita caloric intake (at 2 000 Kcal per day)	143.2	39.3
3. Minimum per capita adult-equivalent caloric intake (at 2 500 Kcal per day)	185.5	42.3
4. Minimum and supplemental living levels per capita set by the Bureau of Market Research, University of South Africa		
- Supplemental living level (SLL)	220.1	56.7
- Minimum living level (MLL)	164.2	44.7
5. Per adult equivalent household subsistence level (HSL) set by the Institute for Planning Research, University of Port Elizabeth	251.1	36.2

In 2007, Statistics South Africa (2007) and the National Treasury (2007) published a document entitled *A national poverty line for South Africa*. This technical work was riddled with lack of consensus on definitions and even worse, arguments around methodological approaches. This followed work previously done by Woolard and Leibbrandt (2006) titled "*Towards a poverty line in South Africa"*. All selected papers used in this technical work were posted as part of the poverty line discussion forum on www.treasury.gov.za. Another commonly used poverty line in South Africa is the US$1 per day.

Using a poverty line of R322 (South African rand at 2000 prices, adjusted for provincial cost of living differences), at least 58% of all South Africans and 68% of the African population were in poverty in 1995, while poverty was virtually non-existent for whites (Ozler, 2007). Many communities in the former homelands have little economic activity, and this has resulted in high unemployment rates in these communities approaching 75% (Ozler, 2007).

Ozler (2007) constructed new, comparable consumption aggregates for 1995 and 2000, using the 'cost-of basic needs' approach, and derived lower-bound (R322) and upper-bound (R593) poverty lines (per capita per month in 2000 prices, adjusted for provincial cost of living differences) for South Africa.

The squared poverty gap significantly increased for most of the relevant range of poverty lines, while the headcount index remained unchanged (Ozler, 2007).

In 2014, the food poverty line was estimated at R321, the lower-bound poverty line at R443 and the upper-bound poverty line at R620 in 2011 prices (Statistics South Africa, 2014). Therefore, in 2011 rand, 10.2 million people (20%) lived below the food poverty line, 32.3 million people (16%) lived below the lower-bound poverty line and 23 million people (46%) lived below the upper-bound poverty line.

While poverty levels and the poverty gap were declining, inequality has been on the increase. While the poverty situation is improving, inequality across South African society remains a serious problem (Statistics South Africa, 2014).

There has been no successful single national effort, but many fragmented efforts after this report to deal with the challenges on how poverty is defined and how research approaches can be developed to inform policies aimed at reducing levels of poverty. A typical example is the effort between Statistics South Africa and the National Treasury in 2007 to develop a poverty line (Statistics South Africa & National Treasury, 2007)

2.6 Remediation in the multidimensional world

Poverty and inequality measurement in South Africa since 1995 has been concentrated on the levels of absolute poverty, using the money metric approach (Statistics South Africa, 2014). Woolard (2002) began the discussion and discourse around the social aspects of poverty and inequality, but the debate stagnated. Alternative methods of poverty measurement using principal component analysis and including social indicators in poverty measurement were not sustained.

The third conceptual challenge is that of devising new approaches that can be remedial and viable under the expanded definitions of poverty and inequality. This requires an understanding that aspects of poverty and inequality manifest themselves in geographical and spatial segregations that can be causal in effect (Grusky et al., 2006).

2.6.1 Multidimensional measures of poverty

The Alkire Foster method was introduced in 2010 to measure multidimensional aspects of poverty using the Multidimensional Poverty Index (MPI). While many countries continue to define poverty as lack of money, multidimensional poverty measures can provide a more comprehensive picture and profile of the poor in a country.

The MPI complements traditionally used methods based on income and expenditure. It captures levels of deprivation for individuals and households using indicators such as education, health and living standards (Alkire et al., 2011).

With the current improved access and quality of data, discourse on poverty and inequality can be better informed and directed. The South African Multidimensional Poverty Index (SAMPI) report (Statistics South Africa, 2014) has attributed 40% of the levels of poverty in South Africa to unemployment.

The report introduced a new international measure of acute poverty, which captures severe deprivation that each person faces. The method has been adopted by the United Nations Statistics Division as MPI 2015+ to track progress alongside the traditional income/expenditure measures towards the new development goals to be adopted after 2015 (Statistics South Africa, 2014).

It is critical for researchers and analysts to understand the demography of poverty in the context of life circumstances and service delivery. To understand the complex relationship between persistent poverty, governance institutions and political processes as well as the role these play in the production of inequality in

an era of market expansion and technological change, has challenges of its own (Drache, 2003).

Holistic measures of poverty and deprivation, which capture the multidimensional nature of poverty such as the United Nations Development Programme's Human Development Index and the Capability Poverty Measure, which have been created to overcome the pitfalls of narrow income definitions, are discussed and analysed (Alkire et al., 2011). These studies in the early years of democracy did not really go into detail of telling the story of poverty in South Africa in its multifaceted form.

Broader issues to be considered in the measurements of poverty in its various dimensions include educational attainment, trends in employment, the interface between household demographics and income, social groups as well as the composition of various income groups within society as a whole (Lanjouw, 1997).

Poverty measures have been used as primary tools for monitoring social and economic conditions as well as to provide benchmarks of progress or failure (David & Maligalig, 2001). These measures function well as long as everyone agrees that when poverty numbers rise, conditions have indeed worsened and conversely, when poverty measures fall, that progress has been made (David & Maligalig, 2001).

In 1995, the Presidency assembled a commission to investigate the labour market policy in South Africa. The result was the report titled *Restructuring the South African Labour Market* (Department of Labour, 1996) which also based its understanding of poverty and estimation of poverty levels on key indicators of poverty in South Africa (World Bank/SALDRU, 1995).

The basis for poverty measurement in South Africa is still riddled with issues of non-consensus on definitions. Progress made in the development of the people in South Africa suffers from lack of scientific research that can stand the test of time. Different research institutions and government conduct research in silos when it comes to measurement of poverty and inequality.

2.6.2 Use of indices for multidimensional measurement

The multidimensional measurement of poverty is encouraged to create a comprehensive understanding of poverty in relation to who the people living with poverty are, and where they live. The methodology further allows for a comparative analysis across the population, within a country, amongst the countries, by population group, settlement type, and other key household and community characteristics. This makes multidimensional approaches key valuable analytical tools to identify the most vulnerable people – the poorest people – as it reveals the patterns of deprivation across the population and over time (Statistics South Africa, 2014).

The widening gap between the poor and the rich continues across the population, and levels of poverty and inequality remain exceptionally high. This situation is attributable to the vast inequality inherited from the previous dispensation, mainly on health, education and basic infrastructure (Ozler, 2007). Understanding demographic transition, economic growth and multidimensional measures of poverty and inequality will provide an alternative lens for poverty and inequality measurement, paying attention to emerging development issues.

Nobody questions that deprivations and achievements go beyond income. There is, however, sharp disagreement on whether the various dimensions of poverty and wellbeing can be aggregated into a single, multidimensional index in a meaningful way. One of the most popular and well-known multidimensional indices of achievements is the United Nations Development Programme's Human Development Index (Lustig, 2011).

Using multidimensional poverty analysis through the use of multivariate regression models and principal component analysis allows for the use of secondary data to develop indices of life circumstances and service delivery as observable facts derived from surveys (Monyai et al., 2015). Different development indicators were used in this study, and include education, employment, income, household goods, access to water, electricity and refuse removal to establish their relationships with demographic indicators.

The relationships between education, labour market, job creation and poverty reduction have not recently been formally explored to inform and review government policies. The Report of the Lund Committee on Child and Family Support (Department of Social Development, 1996) based its understanding, definition and levels of poverty in South Africa on the MLL. The White Paper on Population Policy (Department of Social Development, 1996) mentions the eradication of poverty as one of the guiding principles of population policy and uses the MLL in defining and measuring poverty.

More work can be done on the wealth of data to review the current status and to provide a baseline for income and expenditure to measure economic wellbeing in South Africa, after the release of the results of the large sample surveys in Statistics South Africa. The increased data availability was achieved with the release of the Census 2011 results in 2012. The 10% dataset from Census 2011 forms another basis for further technical work on poverty and inequality. The major challenge remains consensus around concepts and definitions as well as agreed methodologies.

The work done by Statistics South Africa in 2001 focused on access to adequate housing, characteristics of dwelling units and access to basic services, among other variables.

Further comparisons were made against household expenditure for these variables, and urban versus rural disparities were observed (Statistics South Africa, 2001). These indices were developed with different indicators: formal housing (brick dwellings, flats, townhouses, backyard rooms, etc.); electricity for lighting from a public authority or supply company; tap water inside the dwelling; a flush or a chemical toilet; a telephone in the dwelling or a cellular phone; refuse removal at least once a week by a local or district authority; level of education of the head of household; average monthly household expenditure; unemployment rate (expanded definition); average household size; and the proportion of children in the household under the age of five years (Statistics South Africa, 2002b).

Findings from the household infrastructure index constructed by Statistics South Africa in 2001 were that the provinces most in need of infrastructural development such as clean water and sanitation were Eastern Cape, Limpopo, KwaZulu-Natal, North West, Mpumalanga and Free State. The province with the least need of such development, with its sparse population of households, was Northern Cape, followed by Western Cape and Gauteng (Statistics South Africa, 2002b).

From the household circumstances index, the provinces most in need of improvement of life circumstances such as employment creation and family planning were Eastern Cape, KwaZulu-Natal and Limpopo. Gauteng, with its large number of households and large proportion of people moving into the area in search of work, ranked fourth in need according to this index, followed by Mpumalanga, North West, Free State, Western and Northern Cape (Statistics South Africa, 2002b).

The results for development from this study and new data from Census 2011 support the need for Eastern Cape and Limpopo provinces to have improvements in life circumstances of the people, while Gauteng and Western Cape provinces are better off (Statistics South Africa, 2012a).

The household infrastructure index and the household circumstance index described the extent of development of different geographical areas in South Africa. Comparisons were made at provincial level based on national data, but further comparisons can be devolved to metropolitan, district and municipal areas with the wealth of data available from the Community Survey 2007 (Statistics South Africa, 2008) and Census 2011 (Statistics South Africa, 2012a). Work has been done to develop more poverty measures in the Millennium Development Goals and the Government-Wide Monitoring and Evaluation System.

The poverty analysis of households with geographic distribution across the country can draw a simple picture of pockets of poverty. Statistics South Africa, (2006b) used the Provincial Index of Multiple Deprivation (SAIMD) to show spatially the provincial disparities around asset measures of deprivation in 2006 (Statistics South Africa, 2007). This work was done in collaboration with the University of

Oxford and the Human Sciences Research Council. The report was produced to provide further detail on the sensitivity testing carried out and the main methodological issues considered during the construction of the Provincial Indices of Deprivation in South Africa (Statistics South Africa, 2001).

The SAIMD 2006 report (Statistics South Africa, 2006b) covered five areas of deprivation across the population disaggregated by age, gender, population group, employment status, occupation, education and income. The five domains of deprivation were employment deprivation, income and material deprivation, living environment deprivation, health deprivation, and education deprivation. The results showed disparities in the population levels of livelihoods based on the domains (Statistics South Africa, 2006b).

A proper model for understanding the living conditions of the poor, which is different from their economic wellbeing, should be developed and used to guide work around the poverty measurement area. Tesfazghi et al. (2010) worked with a model that presented the urban quality of life in Addis Ababa. The model permitted a systematic analysis of data in situations where there is multicollinearity and singularity across the variables in the dataset.

Quality of life surveys have also been conducted by Gauteng City-Region Observatory (GCRO) since 2009. The survey measures quality, psychological attitudes, value base and other characteristics across the population of Gauteng (GCRO, 2015).

Poverty and inequality are attributable to education in the form of skills, employment and income distribution. Access to services secondarily conforms to the effects of these primary determinants of poverty and inequality (Van der Berg et al., 2007). Alongside job creation, government's poverty reduction strategy also prioritises the social security net and extends the social wage, which includes services such as water, electricity, sanitation, education, healthcare and public transport (Triegaardt, 2007).

In an effort to provide service delivery in any country, the degree of service delivery is influenced by many factors that include, but are not limited to, the availability of human resources and financial resources, the level of sensitisation of the public, the cultural beliefs and the extent of participation in and ownership of the services (Deedat & Cottle, 2002).

According to the United Nations Statistical Development report (United Nations Development Programme, 2006), South Africa is among the better performing countries in Africa and the world at large where the proportion of people without sustainable access to safe drinking water has been reduced. Sanitation and solid waste management practices are urgent health concerns globally, particularly in developing countries (United Nations Development Programme, 2006).

Due to rapid urbanisation, the cities grow and the strain on services delivery intensifies the problems. The rapid increase in the population needs to be catered for in the development plans for the municipalities and the greater metropolitan regions so that a proportional increase in solid waste (refuse) is catered for. As the economy grows and the country develops, new and increased forms of waste are generated (Kingdon & Knight, 2003).

In order to meet the backlog in the provision of basic services for the rural population of South Africa, more needs to be done. This provision remains a political, financial and institutional challenge. Early expenditure on these basic services has not been on clear projections of costs against the numbers to be met. Not much or proper benchmarking was done.

Measuring service delivery in the context of the structural theory of poverty is observed mainly across geographical disparities within provinces and settlement types (urban/rural). Such disparities are also evident across population groups and the gender of the household head within the context of individual deficiencies. These dynamics of access to service delivery highlight the ultimate state of different classes within the population that are unable to compete for state services.

2.7 Using development indicators for poverty measurement

Multidimensional poverty measurement provides a platform for understanding the relationships between extracted factors influencing poverty. These factors include education, employment, income, acquisition of goods, access to water, access to electricity and access to refuse removal. This provides for measurement of development in the context of South Africa in relation to a comprehensive picture of the population. Statistical methods applied determine the relationships and the extent to which development indicators influence the state of poverty and inequality (Monyai et al., 2015).

Before documenting theories relating skills to employment, income inequality and poverty, it is worth considering what is meant by skills. Skills can be measured, for example, by educational level, qualifications held, occupation and training received, and can relate to both 'soft' or employability skills and certified skills.

Soft skills are often identified as part of human capital that has become increasingly valued by employers. The level of qualification or educational attainment is often used in research and analysis as a proxy for skills, as is occupation and sometimes age (Taylor et al., 2012). Labour, education and health sectors are the main contributors to the life circumstances of the population (Statistics South Africa, 2002a).

Poverty and inequality accompany unemployment (Taylor et al., 2012), but social grants have continued to provide a cushion (Van der Berg et al., 2007) as a major source of poverty reduction for millions of South Africans (Triegaardt, 2007). Unfortunately, dependency of individuals and households on this safety net or social security is definitely not a sustainable model for development in South Africa, while dependency is also a contested theory.

The basis of this study was the use of selected development indicators as defined by the Presidency (2005b) and used since 2007. It applied statistical techniques such as principal component analysis and multivariate regression models to provide an alternative integrated approach for complex survey data (Maliki et al.,

2009) in poverty and inequality measurement. This study was not a formal impact assessment, but analyses the associations and relationships between living conditions and access to basic services as they relate to demographic indicators.

Development indicators provide a reflection of the evolution of poverty and inequality in South Africa. Data is used retrospectively to measure progress in development of the population in the post-apartheid period, thus measuring the past by the present, using integrated statistical methods. Limitations in poverty and inequality measurement have been recognised for more than a decade (Everatt, 2009), not only in South Africa.

2.7.1 Education

Previous studies have determined factors that are related to educational attainment, including the fact that the level achieved at secondary level has a bearing on how a student progresses at tertiary level (Mann, 2001). Nyamurere et al. (2011) conducted research on the application of factor analysis to 2009 GHS data to understand factors that affect educational outcomes. The identified factors were fees, violence, parental care and historical advantage.

Within the structural theory of poverty, the relationship between education and poverty shows the results of the human capital theory (Taylor et al., 2012). Negative educational returns need to be interpreted in the South African context, given the considerable variations in educational quality among schools and over time and usually ignored in earnings functions that may account for much of the residual earnings disparities usually ascribed to labour market discrimination (Van der Berg, 2002). This emphasises the need to concentrate on the one factor amenable to policy intervention, i.e. education, to reduce earnings inequality through a more equal attainment of quality education (Nyamurere et al., 2011).

The focus on education was prompted because of its recognised value as a key component of human development and its contribution to individual earnings and national economic development (Monyai, 2015). The United Nations Development Programme's Human Development Report, which charts the national progress in

human capital, is built on an intellectual framework developed by Amartya Sen and Mahbub ul Haq (Sen, 1981), among others.

Human development encompasses more than the growth in income, and extends to the development of human capabilities (Austin, 2006). Although cross-country variation in national per capita income is improving, the same cannot be said for literacy rates (Lloyd & Hewett, 2009). Countries with high levels of education and skills have, on average, high levels of productivity and economic growth. Although skills can affect income and poverty in a number of ways, they are likely to have their biggest impact through their relationship with employment and earnings (Maliki et al., 2012).

The relationship between education and employment is also argued within the labour market impact (Statistics South Africa, 2013). More highly skilled individuals have a better comprehension of the social security system and they can also have an advantage of being aware of both their entitlement to benefits and how to claim those benefits (Taylor et al., 2012). Workers who are more educated have the possibility to be more productive and earn higher wages, and therefore enjoy higher income (Van der Berg et al., 2007). Therefore, increasing people's skills is likely to contribute to raising their level of attractiveness to potential employers. Their likelihood of employment as well as their earnings is conditional on educational attainment and skills (Taylor et al., 2012).

The distribution of physical and human capital emerges from the theoretical and empirical literature as the key to distributional consequences of growth and as the determinant of growth itself (Kanbur, 1998 cited in Van der Berg 2002, p. 20). South Africa is a country with a notoriously skewed distribution of income and consequently high poverty levels for an upper-middle-income developing country (Van der Berg, 2002). Income distribution is positively correlated with educational levels and the ability of people to get into employment (Statistics South Africa, 2013).

Several studies (Bhorat & Kanbur, 2006; Meth, 2006; Woolard and Leibbrandt, 2006) have analysed the role of education in affecting labour market outcomes in South Africa. The relationship between education and the labour market has particular relevance in South Africa, which has been characterised by very high and rising unemployment in the post-apartheid period.

There has also been a concern around skills shortages in the country and the need to embrace them in national policy (Dias & Posel, 2006). Under apartheid, racial dynamics in South Africa determined the way in which education could be accessed by all school-going children and those in the workforce who needed the skills post-1994. Teachers in better-resourced parts of the system did not move to poorer parts of the system. Instead, the provinces employed new teachers (Van der Berg et al., 2007). These in most cases did not have the required qualifications (Chisholm, 2004). Quality of education in South Africa also varies by province (Van der Berg et al., 2007).

Expenditure on education remains the largest budgetary item in South Africa. High expenditure has been observed in the early childhood development (ECD) phase, where there was a steady increase in levels of enrolment from the reception year (Van der Berg et al., 2007). Enrolment was on a steady increase from approximately 150 000 in 1999 to 280 000 in 2002.

According to Census 2011, enrolment has increased to 97% by the end of 2011 (Statistics South Africa, 2012). Gross secondary school enrolment was approximately 85%, indicating a 15% increase since 1992.

The leaner-to-facility ratio has also declined, with classroom sizes declining from 43:1 in 1996 to 38:1 in 2001, indicating that learners are getting access to better classroom facilities (The Presidency, 2004b). The above statistics on education have all changed for the better, as measured in Census 2011. What has been observed were increasing numbers in enrolment and attendance up to 15 years of age (see Chapter 4).

Progress in education for South Africa is ahead of the Millennium Development Goals (which require universal attendance) and is ahead of most comparable developing countries (Statistics South Africa, 2013). In addition, the male-to-female enrolment ratio is greater than one, indicating that slightly more girls were enrolled than were boys. This persistent finding in the recent GHS trends (2002–2011) and Census 2011 has been positively different from other comparable developing countries (Statistics South Africa, 2014).

General outcomes of the educational programmes indicated ten years ago that there was an increase in literacy rates from 83% in 1996 to 89% in 2001 for the general population, while the literacy rate for 15–24-year-olds has increased from 83% to 96% by 2011 (Statistics South Africa, 2013). All of these improvements are also reflected in a parallel increase in the Grade 12 pass rate from 54% in 1996 to 69% in 2002 (Statistics South Africa, 2006b).

While the proportion of Grade 12s has increased significantly, there has been a decrease in the absolute number of tighter progression standards at lower levels and limitations on repeaters (Sheppard, 2009). While it would be expected that a high proportion of 2013 learners were matriculants in 2013, many had left school before matric in line with the high proportions of learners who leave school without completing secondary education (Statistics South Africa, 2014). Therefore, challenges in the educational sector need attention.

Over time, Statistics South Africa data shows that the first ten years post-apartheid experienced an increase of 2% in the number of people completing Grade 12 (5.1 million) and a further 2% increase in the population completing tertiary education (2.2 million). These improvements suggested that the skills profile of the country was improving. However, within the population as a whole, approximately 71% of the population over 20 years of age has not completed secondary schooling. This finding is significant in terms of the impact of human capital on employment (The Presidency, 2003).

The current data from Census 2011 supported an argument about increasing educational outputs, but the skills have not matched the requirement of the economy or labour market demand, hence a persistent 25% unemployment rate since 2008 (Statistics South Africa, 2012a). Related to poverty and inequality are educational backlogs. It has been observed that backlogs in education leave those in poor living conditions with less educational attainment and lower in standard in terms of quality of education (Van der Berg et al., 2007).

Based on the educational backlog, many people are already significantly disadvantaged for competition in the labour market. Ultimately, they become marginalised in that they struggle to find jobs (Statistics South Africa, 2008). When they do manage to get into employment, wages tend to be low (Van der Berg et al., 2007).

Educational backlog of the poor reinforces inequality and poverty, and this is more evident within the labour market. History has shown that the labour force demand is unlikely to change in favour of unskilled labour. With this argument, the situation is likely to persist unless educational quality is improved in the country in the near future (Van der Berg et al., 2007).

2.7.2 Employment

Employment and unemployment relate to poverty and inequality within the dual labour theory (Taylor et al., 2012). In South Africa, poverty and inequality are strongly rooted in the labour market (Statistics South Africa, 2014); therefore, the origins of labour market earnings disparities require attention. Despite the continuing relevance of race for identifying the poor and analysing labour market outcomes, labour market race discrimination has declined as a cause of inequality compared to other factors also often correlated with race, such as education, location (urban/rural), family size and composition (Woolard, 2002).

Gender disparities show that South African women's wages average only 87% of men's in the formal labour force. The breakdown by race shows that African women's wages are actually identical to African men's wages (Van der Berg et al.,

2007). Nevertheless, African women average two more years of education than do African men. On this basis, their salaries should be 20% more. Moreover, white women's salaries average 67% of white men's, despite having equal educational attainment (Chisholm, 2004).

The distribution and labour enabling policies are important ingredients for the development of any nation. Data from a panel analysis of the National Income Dynamics Survey (NIDS) published in 2012 showed that employment and labour force participation assist people to get out of poverty (Leibbrandt & Woolard, 2012). This finding supports the findings from Statistics South Africa on the SAMPI, which showed that 40% of poverty observed in the population is attributable to unemployment (Statistics South Africa, 2014).

There are two main categories of labour employment in Africa and South Africa, namely formal and informal-sector employment (Ozler, 2007). The two categories are common features of the dual labour theory (Taylor et al., 2012). South Africa's economy remains higher than that of other less developed countries on the African continent. The employment share of the informal sector in South Africa is 15%, compared to 75% of the formal sector (Statistics South Africa, 2014).

In line with the dual labour theory, formal sector employment is characterised by relatively higher incomes and better working environments. According to the Labour Force Survey, in the third quarter of 2003 (Statistics South Africa, 2004), it was reported that since 2000, the formal sector was responsible for more than 70% of the jobs created in the country. Changes were observed over time.

Supporting that augment, Statistics South Africa concluded that South Africa had one of the lowest informal-sector employment rates at only 18% against 72% employment in the formal sector (Statistics South Africa, 2007). The picture has changed with an increase in formal-sector employment to 76% and a decrease to 16% as a contribution of the informal sector (Statistics South Africa, 2012a). This shows a catastrophic policy failure by government in relation to the informal sector.

Employment in the informal sector has been stagnant or declining. This was further observed during the period where South Africa's economy was growing at more than 5%, and continued during the years of global recession, between 2009 and 2012 (Statistics South Africa, 2013).

This observation has been identified as a continuous policy challenge in the labour market. It is in contrast to the 1990s, where the informal sector was South Africa's primary job creator, like in other developing African countries (Van der Berg et al., 2006).

The proportions of formal and informal-sector employment have historically been observed to be varying across population group, geographic area, gender, disability, marital status and the country's policies towards labour employment status (Statistics South Africa, 2004). The same was observed in this study (see Chapter 4), which shows evident disparities in employment across the population.

Population group disparities persist, where African women and men as well as coloured women and men are still the most affected by unemployment (Woolard & Leibbrandt, 2006). With the labour market flexibility issues having been discussed over time, another important debate is about the impact of social benefits on individuals and households.

Important questions to ask are whether these social benefits help households to establish a base from which they can develop a sustainability strategy, or whether they discourage people from entering the labour market (Bhorat et al., 2007).

The results of the Labour Force Survey conducted in September 2006 indicated that the continuous rise in employment has added 1.6 million jobs to the South African labour market. The formal sector (excluding agriculture) accounted for 1.4 million of this 1.6 million. During that period, there was an expansion in employment of 500,000 jobs (Statistics South Africa, 2007).

There was a decline in unemployed persons, and the unemployment rate fell from 27% in September 2005 to 26% in September 2006. The rise in employment in 2006 (500,000 jobs created in the labour market), together with a decline in both

unemployed persons (96,000 down) and the number of discouraged work-seekers (95,000 down), suggested then that persons who were previously discouraged were able to find employment (Statistics South Africa, 2007).

Employment growth in 2006 also had a positive impact on both labour force participation and absorption rates. The percentage of working-age South Africans with jobs increased from 41% in September 2005 to 43% in September 2006. All these gains were reversed in the period after the global recession, where the country created just a million jobs between 2008 and 2013 (Statistics South Africa, 2013).

According to the numbers from Statistics South Africa, the twin challenges of inequality and unemployment remain uniquely high when compared with other countries. Undoubtedly, these are largely a product of the country's apartheid legacy. Unemployment and earnings inequality in South Africa had already moved remarkably close together across the population in the first 15 years after apartheid (Bhorat et al., 2007).

Static and dynamic decompositions of earnings inequality by employment status revealed the centrality of unemployment in accounting for both levels and trends of earnings inequality. The dual labour theory (Taylor et al., 2012) or distribution of employment in the formal and informal sectors was found to be of lesser importance in explaining earnings inequality, as was wage dispersion within each of these categories.

Tregenna (2011) has pointed to the central importance of reducing unemployment in South Africa if the extremely high levels of inequality were to be reduced. This argument points towards a disagreement with the positive thoughts painted by many other researchers. Persistence of low pay, especially in the informal sector, may not only be attributable to the characteristics of workers but also to experiencing low pay previously.

This can be characterised within the capitalist system. The low-paid jobs cannot be seen as stepping stones to better-paid jobs, but rather they perpetuate the low-pay-no-pay cycle, consistent with the dual labour market theory (Taylor et al., 2012).

Inequality and unemployment peaked in 2002, and have since declined (at least until the onset of the global economic downturn), albeit at a slow pace, given their severity (Statistics South Africa, 2012c). These close relationships would be partially explained by the fact that higher unemployment means that a lower proportion of the labour force and of the working-age adult population received earnings and hence, inequality would be higher in a straightforward compositional sense (Tregenna, 2011).

The country now has two social classes: one that is increasingly multiracial and enjoys good access to well-paid skilled jobs, and the other that lacks skills and employment (Simkins, 2004). The levels of inequality in jobs and earnings have persisted over time and remain a challenge in the year 2014.

Movement of employees from unstable employment into secure or decent, stable jobs is made difficult by the recruitment processes. Recent relevant experience, skills and references are important aspects for getting into employment (Statistics South Africa, 2014), but this hinders movement between secondary and primary labour market sectors. The employability gap relates to a lack of recent work experience and the effects of social exclusion associated with unemployment and marginal employment (Simkins, 2004).

The results of the Quarterly Labour Force Survey conducted by Statistics South Africa show that many unemployed people in South Africa lack previous experience: 60% have less than matric education and 57% have been out of employment for more than 12 months (long-term unemployment) (Statistics South Africa, 2014). These are the many people who remain marginalised from the labour market.

Rich evidence, based on figures for unemployment, should be used for evidence-based decision-making in the country, promoting better communication of the state of the population on employment. Using extended and official unemployment figures needs to be conceptualised to inform policy reviews and development as well as the political economy in the country (Landman, 2003).

The current understanding that many young people are unemployed less educated and face negative future prospects should call for policy reviews and formulation of better and improved youth development programmes in the country. The high proportion of youth (32%) not in education, employment or training (NEET) remains a challenge for youth development in the immediate and long-term policy environment (Statistics South Africa, 2012d).

Job creation should be put at the centre of country and global efforts to halve extreme poverty by 2015. The only way to counter the poverty and inequality trends is to create more jobs, and these jobs should be sustainable; everything starts with a quality job. Without an expanding labour market, progress cannot be made (Landman, 2003). This challenge persists in South Africa to date, with a 25% unemployment rate over the last 12 quarters (Statistics South Africa, 2013).

Emerging from the analysis is the manifestation of high levels of and disparities in unemployment across the population, over time. How can the issue of lack of skills be addressed in the immediate, medium and long term? Stubbornly high levels of people out of work show negative effects on how poverty and inequality in the labour market manifest themselves across the population.

South Africa has a highly segmented labour market, where the highly-skilled tier is characterised by excess demand (Rama, 2001) while the low-skilled tier displays large excess supply. This study supports Ozler's (2007) argument that unemployment has remained very high in rural areas. Evidence highlights not only the lack of economic activity in former homelands, but also the fact that unemployed individuals stay in or move back to rural areas to attach themselves to households with adequate public or private support (Ozler, 2007).

2.7.3 Income

Income inequality and poverty in South Africa were classified within four dimensions, namely race, gender, spatial and age. These observations informed interventions for economic empowerment that started with African women and moved to African men, coloured women, coloured men, Indian/Asian women, and Indian/Asian men before it would reach white women, and lastly white men (Woolard & Leibbrandt, 2006).

Income disparities are associated with high levels of inequality. Measuring inequality using income remains crucial to the work done alongside broader poverty measurement. Per capita income among the citizenry and income distribution form the basis for this area of measurement. Levels of inequality measured by the Gini coefficient as a measure of monetary status remain crucial (Van der Berg et al., 2007). Broader analyses of poverty can facilitate a measure for the ability of individuals and households to command resources necessary for a decent standard of living (Van der Berg et al., 2007).

South Africa's MDG country report in 2013 has estimated the Gini coefficient at 0.69 (Statistics South Africa, 2013). This is an indication of a highly unequal society.

The social security system has been expanded over the years, particularly to children, the elderly and the disabled (Van der Berg et al., 2007). The absolute increment in social grants seems to be expanding further, with the latest beneficiary count for access estimated at 16 million (Statistics South Africa, 2013). Despite these achievements, South Africa remains one of the highest-ranking countries in the world in terms of income inequality (Van der Berg et al., 2007; World Bank, 2006). The Gini coefficient of 0.69 supports the notion of high inequality in South Africa (Statistics South Africa, 2013).

With the current levels of poverty and inequality, it is apparent that social grants contribute as a major source of poverty reduction for millions of South Africans (Everatt, 2003; Meth, 2006; Triegaardt, 2007; Van der Berg et al., 2006).

Based on the 1995 IES data, the Gini coefficient on household income (before tax) was 0.60 (Woolard & Leibbrandt, 2006). The Gini coefficient has increased over time to 0.69 as estimated in the MDG country report of 2013, based on IES 2011 (Statistics South Africa, 2013). Another methodology to measure the degree of inequality in a country is to examine the expenditure shares of households by deciles. In this method, households are ranked on estimated adult equivalent expenditure and then grouped into 10 ranks, with an equal number of households in each (Van der Berg et al., 2006).

The majority of poverty and inequality studies have focused on changes in income poverty and have found little change or a slight statistically significant increase in the headcount poverty rate between 1995 and 2000 or between 1996 and 2001, depending on the choice of datasets. Using a constructed data series and other data based on the All Media and Products Surveys (AMPS), Van der Berg et al. (2006) showed a decline in poverty after 2000, especially between 2002 and 2004.

In recent years, 2010/11 IES data supports very little change in poverty (Statistics South Africa, 2012d). Due to sluggish economic growth and weak labour market outcomes in South Africa, the proportion of people with low income and trapped in income poverty, increased marginally during the period 1993 to 2000 (Van der Berg et al., 2007).

The marked decline in poverty since 2000, from approximately 18.5 million poor people to approximately 15.4 million poor people in 2004, may largely be due to the unprecedented expansion of social grants expenditure; an increase of R22 billion in real terms (Van der Berg et al., 2006).

The 2005 IES, 2008 LCS and IES 2010/11 conducted by Statistics South Africa have shown a supporting argument for the slight decline in poverty and increasing inequality to about 0.69 Gini coefficient in 2011.

In support of the above arguments, the General Household Survey and Census 2011 indicated that the number of social grants beneficiaries had reached 16 million by 2011 (Statistics South Africa, 2012a; 2012c). This has contributed to

the declining levels of poverty, but the trajectory cannot be sustained for human development where more people depend on the state.

In the study on post-apartheid earnings inequality in South Africa, disparities in earnings resulted in decomposed inequality along various lines, including whether the person is an employee, self-employed, or both. Between-group inequality, according to these categories, accounted for about 9% of inequality in 1997 and 1998, but this declined to zero, or close to zero, by 2004 (Tregenna, 2011).

Both poverty and inequality had increased between 1994 and 1998 (Budlender, 1999). This finding was supported by an official publication using the results of the 2000 Income and Expenditure Survey (Statistics South Africa, 2002b). The average annual per capita income in 1995 was reported to be R12,135, adjusted to 2000 values, which was higher than the per capita income of R11,755 per annum reported in 2000 (Statistics South Africa, 2002b). However, many analysts have raised serious concerns with the quality of income data collected by this survey, pointing to methodological and weighting problems and evidence of sloppy fieldwork and data processing (Meth & Dias, 2004; Van der Berg & Louw, 2003).

When income is calculated and adjusted for South Africa's relative progressive taxes and for the non-cash transfers that are made, the Gini coefficient can be re-estimated to 0.44. Relatively good targeting of old-age pensions and disability grants has resulted in rural areas receiving an unusually fair share (usually high) of social spending compared to the situation in many developing countries (Van der Berg & Burger, 2002). This analysis was not supported by Meth et al. (2004) and was further negated by the quality of income data that the surveys produced at that time.

It can be concluded that the high level of under-reporting of income among households had skewed the analysis. Evidence shows a continued skewed income distribution in a highly unequal manner. Annual household income and expenditure continued to vary by population group, sex and province; and within province, by urban and non-urban areas. African female-headed households and

households in non-urban areas remained the poorest (Statistics South Africa, 2002a).

Within population groups, income distribution was less unequal in 1995 and 2000 among Indian/Asian households (Gini coefficient of 0.43 in 1995 and 0.41 in 2000) than among white, coloured or African households. Among male-headed households, income distribution was relatively unequal in both 1995 and 2000 (Gini coefficient of 0.55 in 1995 and 0.57 in 2000), but it was slightly less unequal among female-headed households (Gini coefficient of 0.49 in 1995 and 0.5 in 2000). The racial profile shows that the poorest people are among the African population group, followed by the coloured and Indian/Asian population groups, while the white population group shows very low levels of poverty (Ozler, 2007).

This implies that the policies are not benefiting the poor and are not implemented fast enough. It further implies that in other areas, policies are not implemented at all. In the same way, those dropping out of school at matric (Grade 12/Standard 10) level make up the highest proportion of individuals without income (Statistics South Africa, 2012e).

Provinces that have a high proportion of Africans and a high proportion of those with incomplete matric level of education are those that have high proportions of the population with no income. Similarly, within these provinces, those who earn some income belong to the lower levels of income category (Statistics South Africa, 2007). This pattern has persisted and was observed in the 2011 Census and General Household Surveys 2000–2011 (Statistics South Africa, 2012c).

Most studies on poverty have focused on the income levels of individuals. Behind this financial poverty measurement lies the concept of utility or welfare, which people are assumed to derive from income and consumption. Household property increases with absolute income, but not proportionately and at a diminishing rate (Kingdon & Knight, 2003).

Little attempt has been made in analysing income disparities and livelihoods using simple methods or indices. This is in spite of the fact that many household surveys

contain questions on household goods that are used in explaining certain behaviour towards competing for resources and acquisition of household goods for a decent livelihood (Austin, 2006). AMPS provides information on the area of measuring welfare and the living measures standards are measured yearly (Stutzer, 2002, cited in Kingdon & Knight, 2003).

The important developmental issue is around how the country should reflect on the rise in income at the upper end of the income distribution index. Not everyone will agree with Feldstein (1999), as some people do see inequality as so intolerable that they regard increasing the income of the wealthy as a bad thing. One can reject, and still favour, spiteful redistributive policies and tax progressivity. Such redistributive policies reflect an assumption that the social value of incremental income (in economic terminology, the social marginal utility of income) declines as income rises (Feldstein, 1999).

2.7.4 Possession of household goods

The measurement of poverty, inequality and possession of household goods becomes critical as part of how life circumstances are observed in the South African population. It is usually assumed that possession of certain types of goods by individuals or households implies that the individual or household is better off than those households without those goods (Woolard, 2002).

According to Census 2011, ownership of a television set has increased from 54% in 2001 to 75% in 2011 and ownership of computers increased from 9% to 21% between 2001 and 2011. Ownership of refrigerators increased from 51% in 2001 to 68% in 2011. The increased acquisition of household goods across the population is attributable to modernisation and use of modern technology that comes with the acquired household goods.

An interesting finding was on the ownership of cellphones, televisions, refrigerators and computers that increased considerably between 2001 and 2011. However, Census 2011 also showed that the demand for radio and landline telephones has declined considerably over the ten years (Statistics South Africa,

2012a). The declining use of radios and landlines across households is attributable to the transition towards using modern technology such as televisions and cellphones for communication purposes.

2.7.5 Access to water

A study carried out in KwaZulu-Natal established a relationship between cost recoveries, prepaid water meters and the cholera outbreak, and observed that more needs to be done to meet the goals as set out in the Millennium Development Goals (Deedat & Cottle, 2002). Service delivery should be a well-planned effort by governments and non-governmental organisations towards the provision of basic human requirements for the betterment of human life.

2.7.6 Access to electricity

The electricity policy in South Africa is based on cost-recovery driven principles, normally reserved for commercial markets. That is to say, users should pay the full cost of the electricity they use. The problem with commercialisation of services is that such services will not be available to people who are unable to pay or in areas deemed uneconomical (Triegaardt, 2007).

Census 2011 results showed that the proportion of households using electricity for lighting had increased in all provinces to 85% of all households countrywide (Statistics South Africa, 2012a).

Relatively small stocks of formal housing force people to seek accommodation in the informal settlements, backyard shacks and in overcrowded conditions (Woolard, 2002). Census 2011 results indicated that the proportion of households estimated to be living in formal dwelling has increased from 65% in 1996 to 78% in 2011 (Statistics South Africa, 2012a).

2.7.7 Access to refuse removal

A comprehensive plan for managing and improving sanitation is essential for improved quality of life and good metropolitan development (Triegaardt, 2007). The repercussions of poor sanitation and waste management practices are poor health and blocked drains that end up overrunning on the surface, affecting the entire environment. Sanitation policy development and implementation in South Africa can be divided into three distinct periods (Triegaardt, 2007).

Post-1994, the new Constitution was developed together with the policy for provision of sanitation services. From 2001 onwards, the sanitation policy had been refined to include refuse removal, and the programme of service delivery had been accelerated towards meeting the Millennium Development Goals targets.

For the purpose of this study, the indicator used for measuring sanitation is access to refuse removal. Current status of performance has shown an improvement, while more remains to be done to extend the service to those who do not have access (Statistics South Africa, 2012c).

2.8 Overview of government's role in poverty and inequality

From the structural theory of poverty, it has been concluded that failure of structures (including government policies and programmes) causes poverty among people (Andy, 2011). To understand the role of government in poverty and inequality in South Africa, a retrospective approach is required, because the RDP forms the cornerstone of what government promised to do. The priorities of government have been outlined and explained in African National Congress manifestoes (African National Congress, 2004; 2006).

Poverty measures are indicators by which policy results are judged and by which the impact of events (e.g. runaway inflation or the introduction of a government transfer programme) can be weighed (Bradshaw, 2006). The measures will function well as long as everyone agrees that when poverty numbers rise, conditions have indeed worsened (and conversely, when poverty measures fall,

that progress has been made). The first question in judging measures is how well the used measures in each composite indicator reflect basic properties desirable on philosophical grounds (David & Maligalig, 2001).

Some argue that the government has done the reverse (Meth, 2006), but the poverty related programmes have helped to address the apartheid legacy of poverty and inequality. However, the challenge of eradicating poverty and other social ills is compounded by societal dynamics, set in motion in part by the transition itself (Andy, 2011). Among these are the decrease in the average size of households and the corresponding increase in the number of households, rapid labour force growth and an increase in rural-urban migration (The Presidency, 2004b).

The abovementioned trends sharpen the challenges for government as a whole in the coming period. There is a need to mediate or rather negotiate the tension between a market-based economic system premised on competition and the desire to build a caring society based on human solidarity (The Presidency, 2006).

With rural development taken as a very important priority for the development of the population, it has been neglected in the past and needs to be at the epicentre of spending priorities (Dias & Posel, 2006).

In certain sectors there have been considerable advances but with significant lags in sanitation, telecommunications and welfare, and government is quite decisive about communicating the areas of improvement that are necessary (Morduch, 2005). This argument can still be supported, that while many advances have been made in areas of service delivery, more remains to be done in the areas of education, employment and income distribution.

The evolution of human development policies, building and improving on the RDP, saw the dawn of GEAR in 1996 and the undertaking of ASGISA. The stated purposes of GEAR were to increase economic growth, with a 4.2% growth rate programmed for 1996 to 2000 (Weeks, 1999). Weeks felt strongly that GEAR had failed due to unfavourable external factors, including the economic recession. The

effects of the recession years were noted over the development trajectory of the country. The results of the 2008/2009 LCS, 2010/2011 IES and the Quarterly Labour Force Survey 2008 to 2011 have shown a reversal of the gains in employment, income distribution and economic growth between 2009 and 2011 (Statistics South Africa, 2012e).

Available data for the period between 2007 and 2011 provides a wealth of information that should be used to map the profiles of poverty and inequality in South Africa. There is enough data to determine and understand different indicators such as education, employment, household income and assets as well as to attribute the changes in poverty and inequality.

There is a need for the integration of efforts towards poverty measurement across government (The Presidency, 2007). This thesis contributes to rigorous debates for short-term to medium-term measurement in the country. While there may be agreement with the statements made by researchers such as Meth (2006) around lack of progress made to date on poverty alleviation, the availability and practicality of using quality data during the late 1990s and early 2000s was a major challenge for making sound conclusions on the state of poverty and assessing the performance of government in this area.

Current evidence shows that while progress has been made in the service delivery environment, little progress has been made in others. There is further evidence showing that economic growth leads to improvement in the incomes of poor households (Van der Berg et al., 2007). This led to the assertion that even with a reduction of social expenditure and the absence of formal structures of democracy, growth remains good for the poor households (May, 2003). This is a bold and perhaps questionable step for the country to reflect on.

Analysis of poverty and inequality has not been tied down to the evolution of policy development in the country. Major questions remain on how education has contributed to the employment status of the people, and how employment influences income and ultimately, the acquisition of assets in households. Meth (2006) and Everatt (2003) have previously asked questions about the ultimate

poverty and inequality picture of the country. The ability to transform the state while delivering (institutional arrangements and understanding backlog of delivery) has been the challenge for government since 1994. The ten-year review by the Presidency (2004b) mapped the trajectory of government.

The current structures of government and intergovernmental relations issues have been at the heart of how government organises itself to deliver its socioeconomic programmes, as a developmental state (The Presidency, 2005a). One of the issues arising from government discussions around its ability to deliver to the citizenry has been its capacity.

The government should answer the question as to whether it is organised in a manner that allows it to perform as a developmental state.

Issues around capacity to spend and organisation for better delivery have been raised (The Presidency, 2004a). Levy and Kpundeh (2004), in their book *Building state capacity in Africa: New approaches and emerging lessons*, have indicated that South Africa is no exception to the challenge of capacity building for states to deliver. The authors attest that, building the capacity of African states, including South Africa, remains at the top of the continent's development agenda.

This relates to reducing poverty and forging productive developmental partnerships with donors and investors. The above partnerships depend critically on strong public capacity and capability to formulate policies and to build consensus. It is further critical to implement reform and to monitor results, learn lessons and adapt (Levy & Kpundeh, 2004). The statements above would be essential for the South African government in pursuit of a developmental state.

In their paper entitled *Increases in poverty in South Africa 1999-2002*, Meth and Dias (2004) sound unconvinced of the positive outlook portrayed by other people that have written or talked publicly about the successes of government. They wrote that analysis of the results in the 1999 October Household Survey and the 2002 Labour Force Survey suggested that the number of people in the bottom two expenditure classes (R0 to R399 and R400 to R799 per household per month)

increased by about 4.2 million over the period. As the boundaries of these expenditure classes remained constant in nominal terms, there is the likelihood that the number of people in poverty will have increased as well (Dias & Posel, 2006).

The possible number of people in poverty is not equal to the increase in the number of people in these two expenditure categories. Rather, it is equal to the difference between the numbers of people in poverty in the two years under review. The country's first crude estimate of the maximum potential number of new poor suggested that it could have been as high as 4.5 million in 2005 (Meth, 2006).

Estimates excluded any adjustments for possible underreporting of expenditure by respondents. The estimate further excluded child cost economies and household economies of scale, as well as the social wage. The estimate was whittled down in an attempt to make the relevant allowances (Meth, 2006). Responding to evidence that poverty is increasing in the country, the government has pointed to a failure to consider the contribution of the social wage to the alleviation of poverty.

Meth (2006) has attested that unless every statistic produced, including the latest census figures, can be shown to be incorrect, there were more unemployed people and very poor people than ever before. The debate about whether they are worse off now than they were under apartheid is pointless. Expressions to the public that it is winning the war against poverty were misguided (Meth, 2006).

Given the location of these people in the distribution of income, an inevitable consequence is the increasing poverty that the government is so keen to deny (Meth, 2006). While the arguments were made in 2006, they stood the test of time as the situation has not changed significantly in 2011, where the Gini coefficient has changed slightly to 0.69 from 0.70 (Statistics South Africa, 2013).

While progress has been made on service delivery indicators, a lot remains to be done in education, employment, income distribution as well as acquisition of assets in households. External factors need to be understood in relation to the performance in economic growth (Andy, 2011).

In their ten-year review, Bhorat and Kanbur (2006) highlight key aspects of the picture that detailed research paints. These were high levels of disparities in income, high levels of unemployment and high disparities in access to services. More positive results were observed though, in relation to trends in access to services over time, but the results on education and unemployment remained negative.

2.9 Critique of the quality of data

For the measurement task to be tackled in South Africa, credible sources of data are required. The data currently available in the country is finally credible enough to allow analytical work on poverty and inequality. There is a need for agreement on an appropriate poverty threshold, and the country still faces the challenge of agreeing on such threshold (May, 2008).

More analytical work has been done by different authors, such as Ozler (2007), Statistics South Africa and the National Treasury (2007), and the Department of Social Development (2000). Importantly, a basic poverty profile is required for the country (May, 2004).

A range of interventions has been developed and implemented within the central programme of the country's social sector. Most of the interventions focused on poverty alleviation using a range of programmes aimed at addressing income, human capital, sustainable livelihoods and asset poverty. The estimated reduced Gini coefficient was attributed to a redirection of spending to the poor since 1994 (Van der Berg et al., 2007).

A strong argument on data quality was made by Meth (2006), who related data quality to the political impact of any analytical work directly or indirectly assessing South Africa's performance since 1994. There is a bigger need for data quality not to be contaminated in any form or manner to take particular relevance.

Data quality has been the undertone of much of the research, as well as consequent debate and discourse around income poverty and inequality shifts, reported for the post-apartheid period (Meth, 2006).

Another strong argument on the quality of data came from the two key pieces in this literature, which have been extremely careful and transparent concerning data problems (Hoogeveen & Ozler, 2006; Woolard & Leibbrandt, 2006). The vivid example of the importance of data quality was observed in the national debate around 'jobless growth' (Bhorat, 2004; Bhorat & Oosthuizen, 2006; Casale, Muller & Posel, 2004; Meth, 2006). It was widely held in political, public sector and media debates that the South African economy has steadily shed jobs, despite positive economic growth, since 1994.

Closer analysis, however, revealed that the notion of jobless growth was reliant on a single and, as it turns out, wholly incomplete, dataset (Bhorat & Oosthuizen, 2006). It remains a critical argument that better collection of statistics accounts for a significant part of the differences and contestations around poverty and inequality to date.

The challenges of definitions and contestations around poverty and inequality measurement and data quality continue. Alongside are aspects of the measurement methods and the monitoring of anti-poverty programmes and policies.

These challenges are beset by more than mere technical or managerial problems. The challenge remains in the conceptualisation as well as the definition being reflective of the dominant ideologies (Magasela, 2005). The task of defining poverty is often given the appearance of technical neutrality, which masks the political and ideological assumptions made (Magasela, 2005).

In the United States, the responsibility of defining poverty has been left to the state (Orshansky, 1965). The federal poverty measure has been regarded and used as the most common indicator for measuring the material wellbeing among low-income Americans. This measure has been used to compare an individual's or a family's income to the amount that is deemed necessary to meet the set minimum standard of living in the United States.

The federal poverty measure has been the primary statistic used to measure the extent of United States poverty. It is also a measure by which the federal and state governments allocate means-tested social welfare benefits (Orshansky, 1965). South Africa is not an exceptional case with its struggles to define and refine poverty and inequality, and agree to the measures and the tools for measurement of poverty and inequality.

Continuous deliberations need to occur in measuring the state of the population. The major challenge for the measurement of poverty and inequality is availability of relevant and quality data. A number of surveys have been conducted since 1995, including the Income and Expenditure Survey (Statistics South Africa, 2002b) and Living Conditions Survey (Statistics South Africa, 2008a).

Other complementary sources include the National Income Dynamics Survey (NIDS) conducted by the University of Cape Town on behalf of the Presidency (Leibbrandt & Woolard, 2012). Some researchers concluded that the standard pro-growth macro-economic policies were assessed as good for the poor as they raised incomes with no significant effect on the distribution of income. At one level, this was a simple and useful message; there is nothing intrinsically wrong with expanding economic output in terms of achieving a reduction in poverty (May, 2004).

First, data quality and comparability have been a constant issue in arriving at a consensus among analysts on the outcome for households and individuals in post-apartheid South Africa. Second, while the outcomes on unemployment, poverty and inequality are indeed bad, the outcomes on social indicators and access to public services are much more encouraging.

Third, the prospects for rapid and sustained economic growth, without which poverty and wellbeing cannot be addressed in the long-run, are themselves negatively affected by increasing inequality, poverty and unemployment (Bhorat & Kanbur, 2006).

South Africa has also seen a very large increase in the rate of corporate social investment in the first fifteen years post-apartheid. There is a high level of individual donations to charities, especially to religious organisations addressing various states of vulnerability (Bhorat & Kanbur, 2006).

This is in line with what was published by the Human Sciences Research Council, through the work done by Habib and Maharaj (2003). The arguments support Van der Berg et al. (2006) as well as Bhorat et al. (2007) in their position around the positive relationship between education and employment.

Bhorat et al. (2007) have raised worries about the quality of data, which has now improved. Their argument in 2006 was that while the outcomes in relation to social indicators are encouraging, poverty and inequality outcomes are bad.

Meth and Dias (2004) have been and remain unconvinced of the manner in which performance of the state has been portrayed over the years. They raised issues of misguided interpretation, close to singing the master's tune.

Better collection of statistics for the measurement of poverty and inequality remains a challenge in many countries, including South Africa. It should be attested however, that there has been improvement in providing poverty and inequality information over the past fifteen years.

Issues of methodologies and interpretation remain to be resolved (Loury, 2000). More sophisticated analytic methods and a growing number of creative scholars are working on the problems.

2.10 Mapping of research objectives, development of the questions and research design

In summary, the methodological contribution of this research was to introduce a model for measuring poverty and inequality, which integrates selected demographic, life circumstances and service delivery indicators, and promotes multidimensional poverty measurement (Alkire et al., 2011).

This study did not focus on causal effects, but rather on associations, relationships and correlations as well as attributing changes to socioeconomic and demographic indicators (Monyai et al., 2015).

The study analysed the output indicators that have influenced levels of poverty and inequality. The study begins with understanding the life circumstances across the population and the changes in living conditions and disparities in access to services.

Chapter 1 provides the historical background and theoretical frameworks of the study and the problem for measuring poverty and inequality was identified. The research paradigm of the study was adapted from Van de Ven (2007), using the positivistic and critical realism theories.

The major gap in the literature has indicated that development indicators have not been used as fundamental building blocks for poverty measurement. The contribution of life circumstances and service delivery measures in poverty and inequality has rarely been researched in poverty measurement.

In examining the key determinants that have influenced poverty and inequality in South Africa since 1994, two objectives were developed. These were to interrogate the key determinants that have influenced poverty and inequality in South Africa since 1994, and to investigate how the predictors of life circumstances and service delivery changed across the population as at 2007.

2.11 Conclusion

Chapter 2 examined the literature for poverty and inequality in line with the structural theoretical framework of poverty. The need was identified in the framework of poverty. The need was identified in the literature, which showed that poverty measurement has been more from a unidimensional approach.

The literature therefore highlights the need to move towards multidimensional approaches for poverty and inequality measurement. This will allow for a broader framework in defining the dimensions of poverty and inequality, and the measurement thereof.

A deepened understanding of the role, capacity and organisation of the state in dealing with the poverty and inequality outcomes has been argued for by Levy and Kpundeh (2004). The complexity of human development and progress made in improving the livelihoods of people in the country have a bearing on how far the country has come. Remnants of the past, mainly the apartheid system, cannot be discounted in attributing the current struggles of the population in South Africa.

It is critical to note that between 2009 and 2014 (the post-recession period), most positives have been reversed. These included high unemployment rates stagnating at around 25% of the labour force, increased disparities across the income levels in households resulting in increased inequality, and increasing needs for social infrastructure.

Very high youth unemployment is a bad sign for the future, with 3.4 million young people between the ages of 15 and 24 years who are not in employment, education or training (Statistics South Africa, 2014).

Positivism emerged as a response to the inability of speculative philosophy to provide pure and scientific evidence. Positivism is a means of obtaining knowledge while it has declared false and senseless many hypothetical issues (Trochim & Donnelly, 2008).

Theories and causes of poverty and inequality form the foundation upon which poverty reduction strategies have been based. While in developed nations poverty has been seen as either a personal or a structural defect, in developing nations, the issue of poverty can be related to lack of governmental funds (Van der Berg, Burger, Burger, Louw & Yu, 2006).

Within the context of a highly complex and contested area of poverty and inequality, the scope and content of this study is conceptualised. In identifying the determinants of poverty and inequality, this study highlights the gaps in consensus on definitions, methods and multiplicity of views. This gap hampers the availability of empirical evidence required for policy implementation.

There is a need to expand the methods for the measurement of poverty and inequality to include development indicators as the building blocks for statistical methods applied in the areas of poverty and inequality.

The context of positivism and critical realism defines the research framework and approach using a scientific approach to test and ascertain the theories and hypotheses raised in the structural theoretical framework.

Positivism and critical realism form a school of thought that has defined statistical models which form the basis for the science applied to provide evidence for poverty and inequality in post-apartheid South Africa. Recognising the need for improved statistical measurement and better methods, it is critical that measures for poverty and inequality be supported by quality data.

While economic growth and development have not formed the basis in this study, the main predictors of development indicators are the demographic indicators. These demographic indicators are used to show the influence of individual deficiencies observed in age and sex disparities and political economic distortions, which manifest themselves in disparities in income and acquisition of household goods.

Geographical disparities are observed in the disparities across provinces and rural/urban divides. Cumulative and circumstantial origins are rooted in the disparities in education, employment and access to services.

The structural theory of poverty highlights the external factors that affect societal development as economic growth and demographic dynamics. Disparities in access to services do not highlight determinants of poverty and inequality, but they are consequences of structural poverty in South Africa.

All indicators used in the study highlight the need to understand demographic dynamics to provide the basis for empirical evidence on how society ends up with poor people who are discriminated against, disadvantaged and socially excluded.

CHAPTER THREE

METHODOLOGY

This chapter covers the methodology used in the study to interrogate the key factors that have influenced poverty and inequality in South Africa since 1994, using the multidimensional approach to poverty measurement. Investigation on the predictors of life circumstances and service delivery has been attained by using different regression models complemented by principal component analysis.

The chapter covers the transition from the theoretical framework and research paradigm of the study to the design of the study, data used and the analytical strategy. The chapter builds on arguments on the research models and theories for measuring poverty and inequality as elaborated in Chapter 2.

In line with the structural theory, external factors, including economic growth, labour market opportunities, and educational and living standards (Andy, 2011) affect the outcomes of life circumstances in the population. Such external factors further manifest themselves in relation to the five pillars of structural poverty, which are cultural beliefs, individual deficiencies, political economic distortions, geographical disparities, and cumulative and circumstantial origins (Bradshaw, 2006).

As previously stated, the problem identified in the thesis is that in South Africa, there is enough data to answer the question on who is poor. There remains a gap on the exact determinants of poverty and inequality based on the expanded and comprehensive picture informed by the multidimensional analytical approach (Monyai, 2015).

Principal component analysis and multivariate regression analyses can provide an understanding of factors influencing life circumstances and service delivery as dimensions in the structural theory of poverty. The socioeconomic status of a household may be measured by assessing access to housing and household services and availability of household goods. These are based on a number of

variables such as access to water, sanitation and refuse removal; type of energy used for cooking, heating and lighting; and ownership of goods such as refrigerator, radio and television. These variables are likely to be correlated and there may be a need to reduce them to fewer variables, which can explain the variation at household level. Principal component analysis (PCA) is usually employed to reduce the number of variables in the data so that variation can be explained with the fewest number of principal components (Richardson, 2009).

3.1 Research approach

Two methodological approaches using secondary analysis were applied in this study. First, a descriptive analysis was performed on the selected population variables (age, sex, population group, province) in relation to changes in life circumstances (education, employment, income, acquisition of household goods) and service delivery (access to water, electricity and refuse removal) in relation to the first objective of the study, namely to interrogate the key determinants that have influenced poverty and inequality in South Africa since 1994.

Second, a detailed predictive analysis of the Community Survey 2007 dataset (Statistics South Africa, 2008) was undertaken on life circumstances and service delivery to examine and shed light on disparities and changes for observed disparities. The combination of principal component analysis and multivariate regression models has ensured an understanding of the relationships across the extracted development indicators pertaining to life circumstances and service delivery in relation to the second objective of the study, namely to investigate how the predictors of life circumstances and service delivery changed across the population over the period 1994–2007.

Descriptive analysis provided answers to the first research question on how each life circumstances and service delivery indicator changed in relation to demographic indicators, and to the second research question on how big are the disparities in access to service delivery and life circumstances across the population.

The predictive analysis was undertaken using different models of logistic and multivariate regression. The method of logistic regression is a technique that is powerful analytically. The technique is mainly used because it is more effective in analysis of dichotomous variables and categorical variables (Chao-Ying et al., 2002). Predictive analysis is not meant to look into the future, but to analyse correlations and associations. The CS 2007 dataset was mainly used for this analysis.

The approach entailed development of different models to predict the association of demographic indicators as dependent variables with life circumstances and service delivery indicators. This analysis attained the second objective of the study, which was to measure the relationship between demographic indicators and life circumstances and service delivery indicators in the post-apartheid period. It further answered the third research question on how the predictors of life circumstances and service delivery were influenced by demographic indicators in the post-apartheid period.

3.2 Research paradigm

After interrogating the factors that have influenced poverty and inequality, a number of regression models were used to determine the attributes of the dependent variables such as education, employment, income distribution and household goods (life circumstances), as well as access to water, electricity and refuse removal (service delivery) on the independent variables such as province, sex, age of household head, and population group (Chao-Ying et al., 2002).

Multiple aspects of poverty together define the more comprehensive experience of poor and non-poor people in society in line with critical realism (Van de Ven, 2007). When the various dimensions of poverty are considered independently, there is no clarity in the relationships between demographic and socioeconomic components of structural theory of poverty. Many "so what" questions remain unanswered.

The choice of positivism backed up with critical realism was based on its strength as a research paradigm that depends on empirical evidence and understanding the complexity of poverty. The availability of sophisticated statistical software and high-speed computers has allowed increased use of logistic regression techniques. Logistic regression analysis is underpinned by a central mathematical concept and the natural logarithm of an odds ratio (Chao-Ying et al., 2002). Empirical contribution of this methodology is based on proof, evident through descriptive and predictive analyses of secondary data.

For this thesis, a meta-theory is referred to as a collection of fundamental assumptions about poverty and inequality, which form the basis for the investigation of research and statistical problems (Harrison, 1995). The structural theory of poverty relates to external factors including economic growth, labour market opportunities, education, and living standards relations (Andy, 2011).

Responding to the limitations of how poverty has been measured to date, as indicated in the literature review, a scientific methodology based on empirical data determined how education, employment and income manifest in the population. All observations around poverty and inequality were put together into a descriptive and predictive analysis to comprehend poverty and inequality in a positivistic approach. In this sense, the assumptions provided the nutriment for reflection upon theories being applied in the study using empirical facts (Bunge, 1996).

The first step in this purist approach was to have an argument that gives a view on the nature of poverty and inequality as two socioeconomic phenomena (Andy, 2011). This started by measuring the changes and disparities across the development indicators followed by use of statistical models to predict relationships between development indicators and demographic indicators. The complexity of both poverty and inequality analysis requires understanding and use of complex statistical methods to quantify indicators. Assumptions used in developing models are clarified and presentations of results followed expected formats (Chao-Ying et al., 2002).

The complexity of poverty and inequality measurement is riddled with a need to understand socioeconomic phenomena in the population. It is for this reason that the output micro-picture (education, employment, income and assets) of the population should be examined and interrogated to shed light on the outcome macro-economic (poverty and inequality) picture of the country (Austin, 2006). Another technique applied in this study is principal component analysis.

A limitation may be that principal component analysis, which is widely applied as a technique, involves a summation of several indicators (weighted), which exaggerates measurement error due to additional mathematical manipulation applied (Walker et al., 2008). Multivariate analysis is a methodology used to analyse complex relationships across the population (Chao-Ying et al., 2002). In this case, education, employment, income, acquisition of household goods, access to water, access to electricity, and access to refuse removal were examined and explained before predictive analysis was undertaken.

The technique provided for understanding the factors that influence the disparities in life circumstances, especially in relation to the poor and non-poor. The work on determinants of poverty and inequality remains critical but highly problematic, because the two phenomena are not directly observable (Giuffrida, Lunes & Savedoff, 2005). Therefore, structural equations have been developed to model determinants of poverty and inequality using cross-sectional data from the Community Survey 2007 in a predictive analysis (Statistics South Africa, 2008).

Multivariate regression analysis forms the basis of analytical discussion and measurement founded in the survey responses. Regression models are able to motivate the validity of the least used squares (in both weighted and unweighted methods) for investigating the relationships between independent and dependent variables in the multiple regression modelling process (Koch, Freeman & Freeman, 2006).

When multivariate and logistical regression models are used in statistical analysis, they allow for prediction (not about the future but relationships) of outcomes using different levels and categories of variables. The predictive analysis also allows for

determination of relationships and correlations or associations across different indicators (Hosmer & Lemeshow, 1989). This is explained in detail in the analysis section of this chapter.

While this study was purely quantitative, there was a need for a concurrent quantity-quality approach for future research towards the concerted efforts to improve livelihoods of their citizens without compromising the quality of the services delivered.

The theoretical framework in Chapter 2 has informed the methodological framework being applied in this study. Inclusion of life circumstances and service delivery measures constitutes the expanded approach towards poverty and inequality, taking into consideration external factors that influence the life of individuals in households and in society. Analytical methods answer the questions on what changes have occurred in living conditions and service delivery across the South African population in the post-apartheid period; how big are the disparities in access to service delivery and the life circumstances as well as what are the multivariate predictors of life circumstances and service delivery in South Africa in the post-apartheid period.

3.3 Data collection methods

The study used secondary analysis of data collected in surveys from Statistics South Africa. The primary data was collected through face-to-face interviews from the questionnaires developed for particular household surveys conducted by Statistics South Africa. The surveys are the General Household Survey, the Quarterly Labour Force Survey and the Community Survey. From the Community Survey, a subset of life circumstances and service delivery indicators disaggregated by demographic variables was selected and the rest of the dataset was excluded for analysis.

This study used a number of different datasets from Statistics South Africa to analyse different life circumstances and service delivery indicators. Comparisons across the provinces and other demographic indicators were made to better

understand the disparities across the population in relation to service delivery and life circumstances. Results are presented in tables and graphs and interpreted (in Chapter 4) to indicate the changes and disparities across the population.

3.4 Data sources

Data collected in the Community Survey in 2007 (Statistics South Africa, 2008a) constitutes the main source for predictive analysis. This was complemented by data collected in the censuses of 1996, 2001 and 2011 (Statistics South Africa, 1998a; 2004; 2012a) for descriptive and trend analysis. The Community Survey of 2007 is the largest survey that Statistics South Africa has conducted in the country (Statistics South Africa, 2008a). One of its objectives was to provide data at lower geographical levels than existing household surveys. This dataset was used for all the predictive analyses.

The predictive analyses were performed using mainly STATA 10 statistical software. Logistic regression solves dichotomous outcomes analysis through an application of a logit transformation to the dependent variable, where the logistic model predicts the logic of Y from X. The example where a logit of 0.85 is acquired, the value of 0.85 becomes a regression coefficient for gender (boy versus girl) predictor when logistic regression has been used to model two outcomes for remedial actions as it relates to gender (Chao-Ying et al., 2002).

The descriptive analysis answers the research question, what changes have occurred in the living conditions of the South African population? And how big are the disparities in access to service delivery and life circumstances in the post-apartheid period?

The descriptive analyses use data collected in the General Household Surveys from 2002 to 2011 (Statistics South Africa, 2012c), the Labour Force Surveys 2001 to 2011, and the Quarterly Labour Force Surveys 2008 to 2011 (Statistics South Africa, 2008, 2012d).

The Income and Expenditure Surveys of 2005/2006 and 2010/2011 (Statistics South Africa, 2012b) were analysed to determine levels and trends in education, income distribution, employment, household goods and access to basic services (water, electricity and refuse removal). This was done across the South African population to measure the performance of government in these areas.

The datasets from the 1996, 2001 and 2011 population censuses (Statistics South Africa, 1998a; 2004; 2012a) were used to determine trends. These trends guided the analysis to judge the past by the present. The present is judged using the Presidency's development indicators, which have been defined and refined for measuring performance of government since 2005. Datasets on education, school attendance and educational attainment were analysed to determine the levels and degree of change in education over time. Changes in the labour force were determined through the analysis of the Quarterly Labour Force Surveys.

In measuring the levels and trends in service delivery, data from the censuses of 1996 and 2001, the Community Survey 2007, General Household Surveys 2002–2011 was used (Statistics South Africa, 1998a; 2004; 2008a; 2012c).

3.5 Data analysis

Analysis for this study was based on secondary data collected by Statistics South Africa since 1994. There are other ways of collecting and collating data using secondary data instead of collecting primary data for research. Secondary data should always be understood to have pitfalls, while it also proves the wealth of data available for use in research of poverty and inequality in the post-apartheid period.

It is always critical to acknowledge the source of the data used for secondary analysis. Pitfalls to look for in using secondary data include the ability of researchers to understand where the data comes from; understand the methodology behind collection of such data and the quality of the data.

While it is understood that the secondary data would not have been primarily collected to answer the questions being researched here, it is important to understand how far it can go, what complementary sources are needed and looking for missing information as well as errors in the data. Thus, a lot of data mining was required to interrogate the secondary data before use.

Within the broad umbrella of the positivist or purist research approach, two main methodological approaches were used in this study. First, descriptive analyses of selected development indicators, which are school attendance, educational attainment, employment status, income distribution, household goods, access to water, access to electricity and refuse removal, were undertaken. Indicators were analysed in relation to changes in living conditions and service delivery across the population.

The second methodology used in the study was a detailed predictive analysis of the Community Survey (Statistics South Africa, 2008) data on life circumstances and service delivery. This analysis was done to determine relationships between development indicators as dependent variables and demographic indicators as independent variables. The predictive analysis further determined underlying factors for observed disparities across the development indictors over time. Predictive analysis and use of logistic regression modelling has been proposed as an alternative for analysis in the late 1960s and early 1970s, and it has grown to be routinely available in statistical packages around the early 1980s (Chao-Ying et al., 2002).

The datasets that were used for descriptive analysis are the Quarterly Labour Force Survey (Statistics South Africa, 2012d, 2012e), the General Household Survey (Statistics South Africa, 2012e) and the Income and Expenditure Survey 2005/06 and 2010/11 (Statistics South Africa, 2007; 2012b). The 1996, 2001 and 2011 census data (Statistics South Africa, 1998a; 2004; 2012a) was also used to complement the descriptive analysis, especially in measuring trends.

Comparative analysis was based on the Community Survey (Statistics South Africa, 2008a) as well as the 1996, 2001 and 2011 population and housing censuses (Statistics South Africa, 1998a; 2004; 2012a).

Whereas each of these datasets is complete for the objectives for which they were collected, none of them met all the study objectives individually; thus the need to use multiple datasets.

Data from the censuses of 1996, 2001 and 2011 (Statistics South Africa 1998a; 2004; 2012a), the Community Survey 2007 (Statistics South Africa, 2008) and the General Household Surveys 2002–2011 (Statistics South Africa, 2012c) provided information on services and living conditions for the overall population.

The Quarterly Labour Force Surveys 2006–2011 (Statistics South Africa, 2012d) provided data on trends and changes in the labour market. Development indicators pooled into the abovementioned datasets were used to develop quality of life measures (life circumstances and service delivery) and their relationship or correlations with demographic indicators. Demographic indicators include provincial distribution, urban-rural distribution, race or population group, gender and age.

3.6 Secondary analysis

As part of the secondary analysis, the selected datasets provided the basis for integrative analysis of different development indicators using descriptive methods. Different trends and comparisons were conducted across the selected development indicators.

Predictive analysis was conducted to provide comprehensive and complex analysis of different development indicators against demographic indicators to understand the ultimate state of the population and hence, how the different indicators have influenced poverty and inequality.

3.6.1 Descriptive analysis

Part of this study included a descriptive analysis of life circumstances and service delivery across the population and measured trends over time. Descriptive statistics refers to methods used to collect, present and characterise a set of data in an effort to describe features of the information contained in a dataset (Koustayannis, 1997).

The analysis concentrated on the changes in employment rates over time and the sector of employment. Wage differences between males and females were determined. Comparisons on employment and levels of education were made together with levels of income within the households. The sector of employment was analysed as either formal or informal. Income distribution was measured across the population and households. Acquisition of household goods was used as a measure of welfare to determine proportions of households with access to selected household goods such as television, radio, computer and internet.

Disparities across provinces, age of household head and across population groups were determined through running descriptive tables on STATA 10 statistical software. The analysis entailed measuring trends in access to water (focusing on quality), access to electricity, and access to refuse removal as a form of sanitation in this study. The products of descriptive analysis were compiled into tables and graphs, which were used in Chapter 4 to discuss the findings of the study.

In the Energy White Paper released in December 1998, the Government of South Africa expressed its intentions with regard to energy provision (Department of Minerals and Energy, 1998). The paper stated first that government would promote access to affordable energy services for disadvantaged households, small businesses, small farms and community services. Second, government committed itself to implementing reasonable legislative and other measures, within its available resources, to progressively realise universal household access to electricity.

Based on the two examples above, relating to water and electricity, it is critical to understand how well government has performed to deliver basic services to the population. For that performance to be related to poverty and inequality requires both the understanding of how much ground has been covered and how that changes lives of people in the population (Andy, 2011).

Methodological and empirical contributions are used to answer the question on the changes and disparities in life circumstances and service delivery using descriptive analysis. The question on examining the key determinants of poverty and inequality since 1994 was answered using predictive analysis.

3.6.2 Predictive analysis

Predictive analysis was chosen to provide the complex determination of associations, correlations and relationships between the life circumstances indicators and service delivery indicators as dependent variables and the demographic indicators as independent variables. Different forms of regression models (Colton, 1974) were used to determine the associations across living conditions described by life circumstances and service delivery indicators. Different models were developed for different indicators and informed by the nature of variables under review. Predictive analysis in this study did not entail construction of one composite indicator but interrogated individual indicators that form components of the life circumstances and service delivery measures. This was done to understand their associations with demographic indicators, thus shedding light into life circumstances and service delivery as components of the structural theoretical framework of poverty.

A single general structural framework for analysis could not be applied, as different variables in the dataset determined the type of statistical model to be applied. Therefore, different models were chosen throughout the analysis as guided by the variables used as independent and dependent variables. The dataset from the Community Survey 2007 (Statistics South Africa, 2008a) was mainly used for correlations and predictive analysis to determine factors that influenced disparities

and changes in life circumstances and service delivery and the state of poverty and inequality within the population.

Based on multivariate analysis as a form of predictive analysis conducted in this study, a number of assumptions were made when the models were developed for each analysis. Different areas of investigation (education, employment, income distribution, household goods, access to water, access to electricity and access to refuse removal) required a particular model based on the variables and the type of data used.

Multivariate analysis used data from complex survey design of the Community Survey 2007 (Statistics South Africa, 2008a), which involved both clustering and stratified samples in a multistage selection process. The technique assumed simple random sampling in the analysis and the weighted least squares approach was used to investigate different relationships among observed estimates and to test the hypotheses. Multivariate regression analysis was used as a predictive technique to determine correlations and associations across different demographic indicators, life circumstances indicators and service delivery indicators in the population (Koch et al., 2006).

When the determinants of poverty and inequality are analysed, indicators of life circumstances and service delivery are composed, not necessarily constructed, into composite statistical models. The indicators used in the structural equation models enabled determination of correlations, relationship or associations across selected variables as individual components of the two dimensions of poverty and inequality referred to as life circumstances and service delivery measures.

The individual models allowed for combination of determinants of poverty and inequality within the demographic indicators. In this way, in a single model, the direct and indirect effects of variables such as age, sex, race, province and rural/urban setting on other variables such as education, employment income, acquisition of goods and access to basic services could be analysed simultaneously (Giuffrida et al., 2005).

Two broad measures (life circumstances and service delivery) were developed with seven multivariate regression models (Kerr et al., 1998) determined by the dependent variable used in the equation. The beta coefficient was used as a measure in the models to indicate contributions of each independent variable on dependent variables (Walker et al., 2008).

Independent variables used were age, sex, population group, province and urban/rural, and the dependent variables used were education, employment, income, household goods, access to water, access to electricity and access to refuse removal. The multivariate analytical models characterised the associations across life circumstances and service delivery to deduce how poverty and inequality manifest across the population in South Africa.

3.6.3 Validity and reliability methods

Logistic regression modelling provides measurement of relationships between dependent and independent variables from complex large sample surveys. Simple logistic regression follows a logistic function and estimates parameters of changes observed in dependent variables in relation to changes in independent variables. Measures for determining the relationships are based on the interpretation of the coefficients in the prospective models (Hosmer & Lemeshow, 1989).

Multiple logistic regression models were also complemented by coding the variables in complex models developed. Simple logistic regression models measure relationships between two continuous variables, for example education and age. Simple logistic models are based on the model $Y= \alpha + \beta_1 X_1$, where regression coefficient β is used to determine the extent of the relationship or association between two variables. Y was used as education and X was used as age in measuring the association between education and age (Hosmer & Lemeshow, 1989).

The least squares method determines the goodness of fit for the model, where an amount by which Y (education, employment, income, household goods) changes on average when X (age, time) changes by one unit. Multiple logistic regression

modelling is used for more than one independent variable to determine the relationship between a continuous variable such as educational attainment and a set of continuous variables (Hosmer & Lemeshow, 1989).

The equation for multiple linear regression models takes the form:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots \beta_i X_i \ldots\ldots\ldots\

Table 3.2: p-value interpretations

p-value	INTERPRETATION
p<0.01	Strong evidence against the null hypothesis
0.01=<p<0.05	Moderate evidence against the null hypothesis
0.05=<p<0.1	Positive evidence against the null hypothesis
0.10=>p	No evidence against the null hypothesis

In the logistic, bivariate and multivariate regression analysis, p-value was used to measure the exact probabilities to ascertain if associations exist across the variables (Hosmer & Lemeshow, 1989). When the conclusion showed no support for the null hypothesis, the alternative was always to reject the null hypothesis. ANOVA (Analysis of variance) was used to assess the relationships between demographic indicators and different indicators of life circumstances and service delivery (Hosmer & Lemeshow, 1989). ANOVA is mainly used for model of fit in the regressions.

Binary logit and probit regression models were used for analysis of education to understand the relations among different categories and numerous variables that were investigated. Dichotomous logistic regression models were used in the analysis of employment data because of the categorical data that was used. There were also two areas of investigation, which are the formal and informal employment sectors.

Multivariate logistic regression models were used for the analysis of income, where income was used as a dependent variable observed across a number of other independent variables to understand how they affect changes in income. Income was also captured as a categorical variable with more than two groups in the analysis. The logistic regression model was used together with the binary logistic model for the analysis of household goods as a number of categories or groups were developed for the analysis. Logistic regression models were developed for analysis of access to water (focusing on quality), access to electricity and access refuse removal. Logit models were based on the use of categorical data.

3.6.4 Technical assumptions and statistical tests for predictive models

There are four known technical assumptions in linear regression modelling. These are linearity and additivity of predictive relationships, statistical independence of errors, homoscedasticity (constant variance of errors) and normality of error distribution (Chao-Ying et al., 2002).

Linearity of relationships between dependent and independent variables were established. Fitting of a linear equation determines relationship and outliers in the data (Chao-Ying et al., 2002).

The data was assessed for quality to ensure that the data was independent of errors. This included checking for inconsistencies across the datasets and the establishment of exact measurement of independent variables using cross tabulations. Measuring the homogeneity of variance across the predictor and predicted values, the same finite variance was observed.

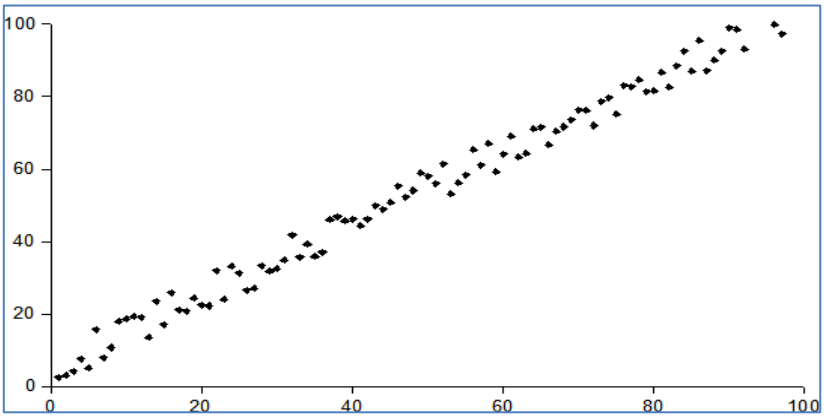


Figure 3.1: Generic illustration of homoscedasticity

Independence of errors was tested, as secondary data was evaluated before predictive analysis was undertaken on the data. The assumptions were adhered to and the scientific findings and observations are deemed to be sufficient and unbiased. All output tables for regression modelling, as illustrated in Chapter 5, conformed to the technical assumptions of regression modelling.

The logistic regression model output tables in Chapter 4 provide sufficient information addressing an overall evaluation of models, statistical tests of individual predictors, goodness of fit and assessment of predicted probabilities (Chao-Ying et al., 2002).

3.6.5 Principal component analysis

PCA has been widely used for the construction of a wealth index (Sricharoena & Buchenrieder, 2006; Vyas & Kumaranayake, 2006; Howe, Hargreaves & Huttly, 2008; Krishnan, 2010; Xhafa & Nurjana, 2015; The Consultative Group to Assist the Poorest, Not dated). It is designed to be used with continuous data that is normally distributed (Howe, Hargreaves & Huttly, 2008). However, data on housing and household services is mostly categorical, which makes it necessary to create binary dummy variables for each classification of categorical variables (Filmer & Pritchett, 2001).

The number of principal components that can be selected is usually based on components that have an eigenvalue of at least the value of 1.0 (Vyas & Kumaranayake, 2006; Xhafa & Nurjana, 2015). The output of the analysis of PCA ranks the components such that the first component accounts for the largest amount of variation (Krishnan, 2010).

Since a number of principal components can be derived from the results of PCA, it is recommended that the first principal component, which explains the largest proportion of the total variance, should be taken to represent the wealth of the household (The Consultative Group to Assist the Poorest, Not dated; Houweling, Kunst & Mackenbach, 2003).

Factor scores indicate how much a variable contributes in the determination of a component, with a higher positive weight associated with higher contribution to the component. That is, a variable with a positive factor score is associated with higher socioeconomic status and vice versa for the negative score (Vyas & Kumaranayake, 2006).

3.7 Construction of life circumstances and service delivery measures

The purpose of using broad life circumstances and service delivery measures was to provide a collective explanation with a comprehensive picture of the poor in society (Monyai et al., 2015). The multidimensional approach to analysis is used to obtain a composite or collective picture of a particular phenomenon (Giuffrida et al., 2005); in this case, poverty. Two measures that were developed for the purpose of this study, one for life circumstances and another for service delivery, guided the investigation into determinants of poverty and inequality. The development of broad measures for the purpose of this research was premised on identifying the key indicators that influence changes in poverty and inequality, grouped into two dimensions.

Understanding how the development indicators changed over time to measure progress in life circumstances and services as dimensions of poverty and inequality remained the cornerstone of the analytical framework of this research. Education, employment, income and household goods were used as indicators to collectively explain changes in life circumstances as a broad indicator. The indicators for access to water (focusing on quality), electricity and refuse removal were pulled together to collectively explain the measures of service delivery.

The development indicators that collectively form both life circumstances (education, employment, income and household goods) and service delivery (access to water, access to electricity and access to refuse removal) were used to perform predictive analysis. In the predictive analysis to determine relationships, correlations and associations, the life circumstances and service delivery indicators were used as dependent variables.

The demographic indicators such as province of residence, gender, population group and age were used as independent variables when carrying out different regression modelling analyses. While the results may have not been provided in composite form in all areas, a collective understanding of the key determinants of poverty and inequality can be drawn from the different models used.

The life circumstances measure was developed as a composite indicator using indicators such as education, employment, income and household goods as determinants of poverty and inequality in a population. Analysis undertaken on each of these determinant indicators was modelled with the demographic indicators such as population group, province of residence, age of household head and sex of household head to investigate their associations.

For educational attendance, binary probit regression models were developed for school attendance because it was a dichotomous variable. The multinomial regression model was used to analyse educational attainment because the variable has many categories of attainment such as no schooling, primary, secondary, tertiary.

Employment status was analysed using logistic regression because of the two categories being formal and informal employment. For income analysis, multivariate analysis was performed using multinomial logistic regression, as the variable is categorical, to determine the probability of having income in different categorised levels.

To analyse household goods acquisition in households and to examine the variation in possession of goods, four different indicators were created. A binary regression model was run to obtain the predictive values for possession of different household goods across households.

The analytical framework of the study shown in Table 1.1 provides an overview of the overall study design and an integrated statistical model for the study. Based on two main measures, life circumstances and service delivery, the main development indicators for the study were selected. These indicators shed light on a collective explanation of the complex dimensions of poverty and inequality.

The methodological framework of this study follows the processes for data collation, development of life circumstances and service delivery measures, and analysis undertaken in identifying key determinants of poverty in South Africa since 1994.

Datasets from Census 1996 and Census 2011, Income and Expenditure Surveys 2005/06 and 2010/11, General Household Surveys 2002–2011 and Quarterly Labour Force Surveys 2006–2013 were used to perform descriptive analysis. Predictive analysis was performed on the Community Survey 2007 data, which was the most recent large sample survey at the time of data analysis. The life circumstances measure was constructed by grouping indicators education, employment, income and household goods. Indicators for the service delivery measure are access to water, refuse removal and electricity.

All indicators for life circumstances and service delivery were individually measured against socioeconomic indicators gender, age, population gap, settlement type and province. Logistic regression models were used to determine predictors of life circumstances and service delivery in South Africa as a method to interrogate key determinants of poverty and inequality.

A logistic model can be deemed to provide a better fit for data, if it can demonstrate a level of improvement over the null model commonly known as the intercept only model, which normally contains no predictors. The logistic regression technique was helpful to demonstrate relationships between a predicted outcome and other characteristics found in observed results (Chao-Ying et al., 2002).

In this section, the methods applied on indicators that were selected for the construction of life circumstances measurement are described.

3.7.1 Education

The educational part of the research deals with school attendance and educational attainment in South Africa. The first part focused on school attendance to establish patterns of school attendance across the population. The second objective of this analysis was to examine changes and disparities in school attendance and educational attainment in South Africa. Trends in school attendance and educational attainment in South Africa were also examined. Further descriptive comparisons were made using household income.

Three models were run, namely binary logit (logistic), probit and multinomial logit regression. The binary logit and binary probit regression models were used for the dependent school attendance variable, as it is dichotomous.

The developed probit model for school attendance took the form:

$$F(u) = ß_1X_1 + ß_2X_2 + ß_3X_3 + \ldots\ldots + ß_Pß_P \ldots\ldots\ldots\

The following formulation was deemed appropriate:

$$\text{In (odds)} = \beta_o + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 \ldots\ldots (3)$$

Where:
B_o, β_1, β_2, ….. β_8 are coefficients of the logistic model,

X_1 = household size
X_2 = household income category
X_3 = marital status
X_4 = type of dwelling
X_5 = educational level of household head
X_6 = sex of household head
X_7 = population group
X_8 = province.

The logit, in (Odds) on the left-hand side is an independent variable, which in this case is the labour force employment status with two categories described above.

Odds = prob/1-prob

and

$$Prob = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_8 X_8}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_8 X_8}} \ldots\ldots\ldots\

For the multivariate analysis, a multinomial logistic regression was run because of the multiple number of variables used in the analysis. The selection of multinomial logistic regression is based on the fact that income, which is the dependent variable in the model, was captured as a categorical variable with more than two groups.

The multinomial regression model takes the form:

$$\sum_{j=1}^{j} p_{ij} = p_{i1} + p_{i2} + \ldots + p_{ij} = 1 \quad \ldots\ldots\ldots\ldots\ldots\ldots(5)$$

Where:
P_{ij} = the probability of person i, earning income j and this adds to "1" (rule of probability theory).

To model the probability of each outcome, the research used the formulae below:

$$p_{ij} = \frac{\ell^{\sum_{j=1}^{k} a + \beta_{kj} x_{kji}}}{\sum_{j=1}^{j} \ell^{\sum_{j=1}^{k} a + \beta_{kj} x_{kji}}} \quad \ldots\ldots\ldots\ldots\ldots\

3.7.4 Acquisition of household goods

In measuring disparities in the acquisition of household goods, the major objective of this part of the study was to use household goods in explaining the household's ability to acquire goods.

The question on household goods in the Community Survey 2007 questionnaire asked whether the household had any of the following items: refrigerator, radio, television, computer, landline, internet facilities, post office facilities and cellphone (Statistics South Africa, 2008a).

Specifically, the study examined variations in possession of household goods by province of birth, gender, population group, age, income and education. In order to analyse the data, four indicators were developed as shown below.

Proportion of households with at least one of the eight goods (indicator I):

$$I_1 = f(x) \quad \text{.....(8)}$$

Where:
f(x) = 1 if household has at least one item
f(x) = 0 if household has no single item.
Proportion of households with all the eight goods (Indicator II).
Proportion of households without any of the eight goods (Indicator III).

$$\sum_{i=1}^{n} x_i / n = I_a \quad \text{.....(9)}$$

Where:
Xi = If item is present, xi takes value 1 or else value 0
N = total number of items considered
I_a = the index of all items
If I_a = 1, the household has all the items, hence indicator II
If I_a = 0, household does not have any of the eight household goods indicator III.

In order to be sure that the above indicators can explain household acquisition of goods, indicator II was modified to the proportion of households with all the five goods (indicator IV). This was based on the fact that the proportion of households

with computers and those with internet may be very small. Second, access to the internet is far from universal.

Analysis for the abovementioned four indicators was done by the selected characteristics, namely province of enumeration, household size and some demographic indicators of the household head, namely gender, population group of the household head, educational attainment, age and income.

(Note: indicator IV has been expressed as I_{a5} where five denotes that only five household goods will be considered. With the above indicators, a binary logistic regression model was fit to make inferences.)

The logistic regression model is expressed below:

$$\text{Odds} = P/1\text{-}P = e^{\alpha+\beta_1 X_1 + \beta 2X2 + \ldots+\beta_p X_p} \quad \ldots\ldots(10)$$

Taking the logarithms of both sides:

$$\text{Log}\{P/1\text{-}P\} = \log^{\alpha+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_p X_p} \quad \ldots\ldots(11)$$

$$\text{Logit } P = \alpha+\beta_1X_1+\beta_2X_2+..+\beta_pX_p \quad \ldots\ldots(12)$$

The coefficients β_1, β_2, β_p are such that the sums of the squared distance between the observed and predicted values (i.e. regression line) are smallest, similar to linear regression.

α represents the overall indicator (I_a, I_{a5}). β_1 represents the fraction by which the indicator (I_a, I_{a5}) is altered by a unit change in X_1. β_2 is the fraction by which the indicator (I_a, I_{a5}) is altered by a unit change in X_2, and so on.

Service delivery was developed as the second broad measure for the analytical framework. For the purpose of this study, the measure was developed to provide a broader picture of service delivery as a composite measure of access to basic services.

The abovementioned indicators for the service delivery measurement were analysed against the demographic indicators at household level to ascertain how the service delivery indicators play themselves across the population.

In this section, the methods applied on indicators that were selected for the construction of service delivery measurement are described.

3.7.5 Access to water

Measuring the disparities in access to water, four categories were created to determine the quality of access to water. The categories, very good, good, fair and poor were derived for measurement of the quality of water service delivery for the multinomial logistic regression.

Access to water was considered to be 'very good' if provision of piped water service is either inside the dwelling or inside the yard; 'good' if the piped water access was found outside the yard, but accessible less than 200 metres. This was a standard as set in the RDP.

The water service was considered as 'fair' if it is any of the following: borehole, spring, dam/pool, river/stream, water vendor and rainwater tank, only if the distance to that water source is less than 200 metres. The service was considered as 'poor' under conditions contrary to the abovementioned conditions.

The quality of water was regressed on household size, education level of the household head, household income, marital status, type of toilet facility, type of dwelling, gender of household head, population group and province.

The following formulation was used:

$$\text{In (Odds)} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 X_9 \ldots\ldots \quad (13)$$

Where;
$\beta_0, \beta_1, \beta_2, \ldots. \beta_9$ are coefficients of the logistic model

X_1 = household size; x_2= household income category; x_3= marital status
X_4 = toilet facility; x_5= type of dwelling; x_6 = education level of household head
X_7 = sex of household head; x_8= population group; x_9 = province.

The logit, In (Odds) on the left-hand side is an independent variable, which in this case is the quality of water service delivery with four categories described above.

$$Odds = \frac{Prob}{1-Prob} \quad \ldots\ldots\ldots\

of household head, household size, type of dwelling unit and ownership of the dwelling unit.

3.7.7 Access to refuse removal

Measuring the disparities in access to refuse removal focused on trends in refuse collection by local government according to the different geographical and other socioeconomic characteristics of households. In the Community Survey 2007 and censuses of 1996, 2001 and 2011, the question dealt with how the refuse or rubbish from this household is mainly disposed of (Statistics South Africa, 2008a; 1998a; 2004; 2012a).

The answers provided had the following categories: removed by local authority/private company at least once a week; removed by local authority/private company less often; communal refuse dump; own refuse dump; no rubbish disposal; and other.

The categories for refuse removal were reorganised into three groups, namely Local authority/private company; No disposal (implying no rubbish disposal); and Own disposal, which could even include throwing it in the veld.

Table 3.1: Linkages between structural theory of poverty, research questions, objectives, data required and analytical tools

Structural theory of poverty	Research objectives	Research questions	Data required	Analytical tools
4 pillars Individual deficiencies Political economic distortions Geographical disparities Cumulative and circumstantial origins	To interrogate the key determinants which have influenced poverty and inequality in South Africa since 1994	What changes have occurred in the living conditions and service delivery across the South African population, in the post-apartheid period?	Trends and types of changes in living conditions and housing services rendered for people in the post-apartheid period 1994 to 2007 (GHS, QLFS, LCS, Census)	Descriptive statistics (measure of change over time)
		How big are the disparities in access to services and life circumstances in South Africa across the population since 1994?	Household income trends to measure poverty and inequality Employment trends Unemployment trends Literacy rate/educational attainment trends (GHS, QLFS, LCS, Census)	Descriptive statistics (measures of disparities)
Multidimensional approaches to poverty measurement Meta-theoretical reflections	To investigate how the predictors of life circumstances and service delivery changed across the population over the period 1994–2007	What are the predictors of life circumstances and service delivery in South Africa between 1994 and 2007?	Service delivery outcomes across the population Life circumstances outcomes across the population (CS 2007)	Predictive analysis using multivariate regression models and principal component analysis

Table 3.1 provides the methodological framework or study design and the linkages between the theoretical framework, research objectives, research questions, data used in the study and the analytical tools. Linked to the theoretical framework, four pillars were addressed together with the two objectives of the study. Analytical tools were used to answer the research questions in meeting the objectives of the study. The methodological framework links the data sources, construction of the life circumstances and service delivery measure in line with the theoretical pillars. It further indicated the analytical tools used to interrogate the key determinants and investigate the predictors of poverty and inequality.

3.8 Conclusions

The methodology for this study is mainly a secondary analysis of data that has been collected in different surveys and censuses by Statistics South Africa since 1994. The approach entailed first providing a descriptive analysis of all indicators used to develop composite indicators for life circumstances and service delivery.

All the indicators were analysed across population group, province, sex and age. Community Survey 2007 data (Statistics South Africa, 2008a) was mainly used for the predictive part of the analysis. This statistical analysis encompassed use of statistical models.

Bivariate analysis models were used to depict relationships between life circumstances and service delivery indicators as dependent variables. Demographic indicators such as province, population group, sex and age were used as independent variables.

Multivariate models were used to compute the underlying factors in the observed relationships and to depict how the different indicators play themselves against each other. Multinomial logistic regression models were used in analysis where dependent variables had more than two categories, for example in educational attainment.

The research design has supported the objectives (to interrogate the key determinants that have influenced poverty and inequality in South Africa since 1994, and to investigate how the predictors of life circumstances and service delivery changed across the population over the period 1994–2007). The four pillars of the structural theoretical framework of poverty and broad theoretical aspects were aligned to the research questions. The analysis in the study was performed to provide answers to the research questions using statistical methods that can stand the test of time.

The results have been summarised in tables and graphs in Chapter 4 and discussed in Chapter 5, in relation to the objectives of the study.

CHAPTER FOUR

RESULTS AND ANALYSIS

The focus of this chapter is to present the descriptive analysis in line with the first objective of the study. Predictive results are in line with the second objective of the study. The two objectives were attained through interrogation of development indicators and investigation of the predictors for life circumstances and service delivery across the population since 1994.

Section A presents the results of life circumstances indicators (education, employment, income and household goods). Section B presents the results of service delivery indicators (access to water, electricity and refuse removal). Life circumstances results were responsive to the four pillars of structural poverty, which are individual deficiencies, economic political distortions, geographical disparities, and cumulative and circumstantial origins. Service delivery indicators were only responsive to two pillars, which are economic political distortions and geographical disparities.

Changes and disparities across the development indicators responded to research question numbers 1 and 2 while predictive analysis responded to research question 3 on multivariate predictors of life circumstances and service delivery. The analysis presents results and findings on the interrogation of education, school attendance and educational attainment, employment status, household income, household goods, access to water, access to electricity and refuse removal. These indicators allowed for a descriptive and predictive analysis of changes in life circumstances and service delivery in South Africa in the post-apartheid period.

The analysis covered trends from 1996 to 2011, depending on the availability of data for different variables and indicators. The baseline year was 1996, as this was the first census undertaken in the country post-apartheid. Other data include Census 2001, Community Survey 2007 and other household surveys.

Once the changes and disparities had been explained, a predictive analysis was undertaken to investigate how the predictors for life circumstances and service delivery changed over the period 1994–2007. The study further demonstrates how the underlying factors for relationships manifest themselves across the population in relation to the broad measures of life circumstances and service delivery. This section mainly answers the research question on what are the predictors of the observed disparities and changes in relation to poverty and inequality among South Africans in the post-apartheid period?

Mathematical and statistical methods and techniques of combining the multiple aspects of poverty also have several limitations that need to be acknowledged (Walker, Tomlinson & Williams, 2008). These limitations have been dealt with through construction of different logistic regression models in this study in an alternative integrated statistical method. The analysis involved mainly logistical and multivariate regression models. These models were used to determine correlations and relationships across demographic indicators, life circumstances indicators and service delivery. The analysis was done at individual and household levels, depending on the indicators used in the analysis.

The independent variables, depending on the model developed at individual level, were age, sex, population group, province of residence, geographic area, type of dwelling and marital status. The independent variables, depending on the model developed at household level, were sex of household head, age of household head, educational status of household head, and income of household head.

Multivariate analysis was applied to determine attributes of independent variables on dependent variables, to determine how much of the change in independent variables such as household circumstances may be attributed to the population characteristics such as province of residence or age as indicated in the analytical framework below. Multivariate analysis was chosen first, as it allows for prediction of results using different levels of observation, including individual, population and related variables. Second, because the indicators used in the analysis had multiple variables used in the predictive model.

SECTION A: LIFE CIRCUMSTANCES MEASURES

4.1 Changes and disparities in education

Measuring changes and disparities in education was the first step in interrogating the key determinants that have influenced poverty and inequality since 1994, as the first objective of the study. The results are derived from the censuses of 1996, 2001 and Community Survey 2007. School attendance measured the proportion of people attending primary and secondary school. The levels of educational attainment were no schooling, some primary school, completed primary, some secondary, Grade 12 or Standard 10 as well as higher learning.

4.1.1 School attendance

This section focused on school attendance. Figure 4.1 indicates that the proportion of people attending school was 74% for the age cohort 6 to 24 years. The proportion of children aged between 6 and 15 years of age was closer to universal attendance at 95%. Few individuals aged above 24 were attending school. The proportion of children aged between 6 and 15 years and not attending school at 4% may seem small; however, this accounts for more than 400,000 children, and the number is bound to increase as the population continues to grow.

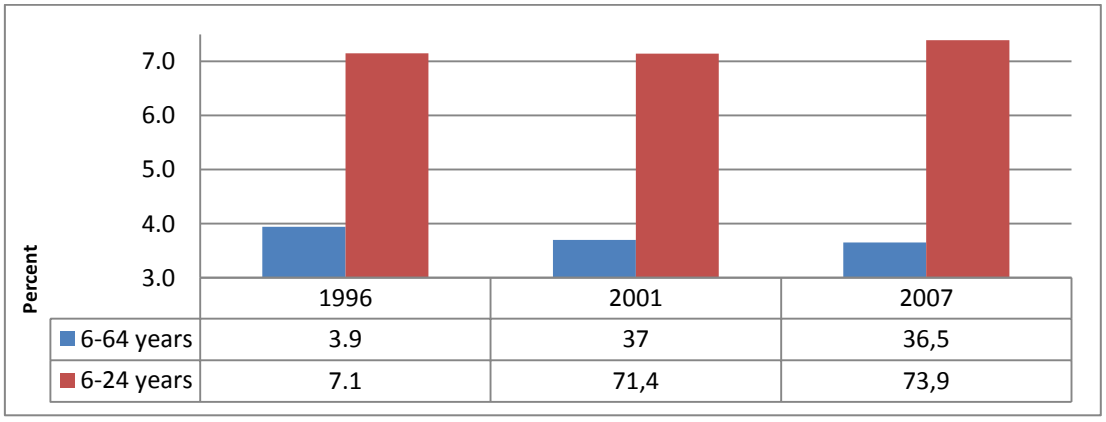


Figure 4.1: Trends in school attendance

(Statistics South Africa, 1998a; 2004; 2008a)

The data in Table 4.1 depicts the declining attendance from the age of 16 (90%) to the age group 19–24 years (30%). School dropout begins at lower ages and hampers completion of secondary schooling beyond 16 years of age. Schooling is only compulsory up to this age.

Table 4.1: School attendance by different age grouping, 2007

Age	Male		Female		SA	
	Number	%	Number	%	Number	%
6	546,452	92.2	525,499	93.0	1,071,952	92.6
7	475,629	94.9	547,976	96.0	1,023,605	95.5
8	700,541	96.9	585,522	97.1	1,286,063	97.0
9	592,076	96.7	479,156	96.5	1,071,232	96.6
10	464,465	96.2	509,822	97.4	974,287	96.8
11	505,039	96.7	381,841	96.3	886,880	96.5
12	453,862	96.3	677,994	97.5	1,131,857	97.0
13	441,627	96.0	557,441	96.7	999,068	96.4
14	543,354	96.2	437,613	95.2	980,967	95.8
15	511,165	94.3	488,347	94.1	999,512	94.2
16	520,933	90.9	444,320	89.4	965,254	90.2
17	459,750	84.0	412,020	80.3	871,770	82.3
18	554,049	67.1	399,967	63.5	954,015	65.6
19–24	2,997,242	30.7	2,511,737	28.2	5,508,980	29.5
25–40	5,748,305	3.1	5,729,374	4.6	11,477,680	3.9
41–64	4,517,784	1.0	4,647,347	1.2	9,165,131	1.1
Total/average	**20,032,273**	**36.9**	**19,335,978**	**36.2**	**39,368,251**	**36.5**

(Statistics South Africa, 2008a)

Table 4.2: School attendance by age and gender, 2007

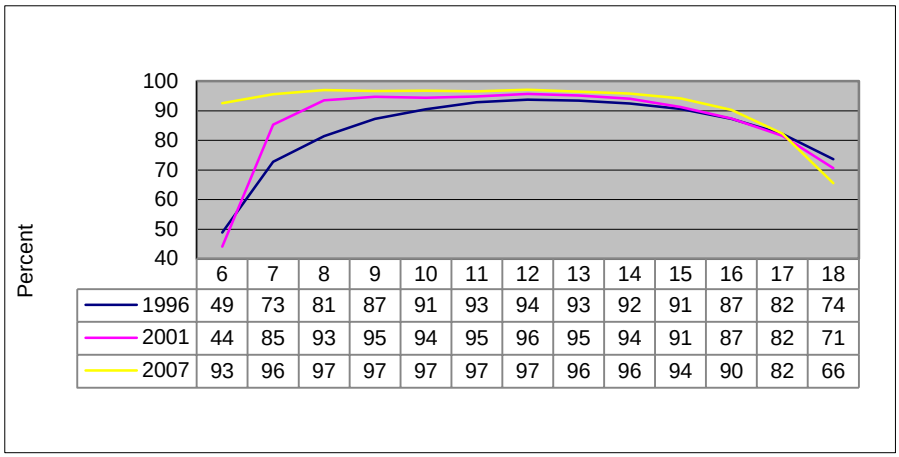
Attended schools	6–24 years		6–15 years	
	Number	%	Number	%
Yes	13,833,767	73.9	9,993,662	95.9
No	4,891,673	26.1	431,760	4.1
Total	**18,725,440**	**100.0**	**10,425,422**	**100.0**

(Statistics South Africa, 2008a)

The results depicted in Tables 4.2 and 4.3 show that universal school attendance is about to be achieved in South Africa at younger ages. The proportion of children attending school increased from 93% at age 6 to 97% at age 12 years. However, this proportion plummeted to 66% at age 18 years. This rapid drop in school attendance coincided with the age group for school leaving or joining university and other institutions for higher learning.

The observed increments in school attendance pose a challenge to the government as it means that additional budgetary allocation to the Department of Education is required to cater for the increasing numbers. Increasing numbers mean an increased need for infrastructure like classrooms and service providers, especially additional teachers.

The proportion of those attending school began to fall around ages 14 and 15 years in all the years analysed, but faster for the year 2007. After age 15, the dropout rates began to rise as depicted in Figure 4.2. This can be related to the cut-off age of compulsory schooling, which is 16 years. Other factors that hamper young people from continuing with their schooling are school fees and teenage pregnancy (Dieltiens & Meny-Gilbert, 2009). This has further been supported by the General Household Survey trends (Statistics South Africa, 2012) and census results that have shown declining proportions of learners after the age of 15 years.



	6	7	8	9	10	11	12	13	14	15	16	17	18
1996	49	73	81	87	91	93	94	93	92	91	87	82	74
2001	44	85	93	95	94	95	96	95	94	91	87	82	71
2007	93	96	97	97	97	97	97	96	96	94	90	82	66

Figure 4.2: Trends in school attendance

(Statistics South Africa, 1998a; 2004; 2008a)

According to the Community Survey 2007, taking the age cohort 6 to 24 years (normal schooling cohort), provincial disparities indicate that Mpumalanga had the highest proportion of those attending school (82%), followed by Limpopo (76%), Eastern Cape (74%) and Gauteng (74%). Northern Cape had the lowest proportion (66%).

Provincial disparities are clear from the analysis, and these may be attributable to the movement of people of school-going age to access schools in the provinces showing higher rates of attendance.

Based on absolute numbers, KwaZulu-Natal had the highest number of children within the compulsory school-going age cohort (2.4 million), followed by Mpumalanga (1.9 million), Eastern Cape (1.78 million) and Gauteng (1.4 million). These four provinces each had more than one million children of the South African compulsory school-going age.

An interesting observation is the general increase in school attendance in the age group 6 to 8 years over the period 1996–2007. This trend has not been sustained in the age group 15 to 18 years over the same period. The unsustainable development is attributable to the increased number of young people who leave school before they complete secondary education.

Table 4.3: School attendance by province, 2007

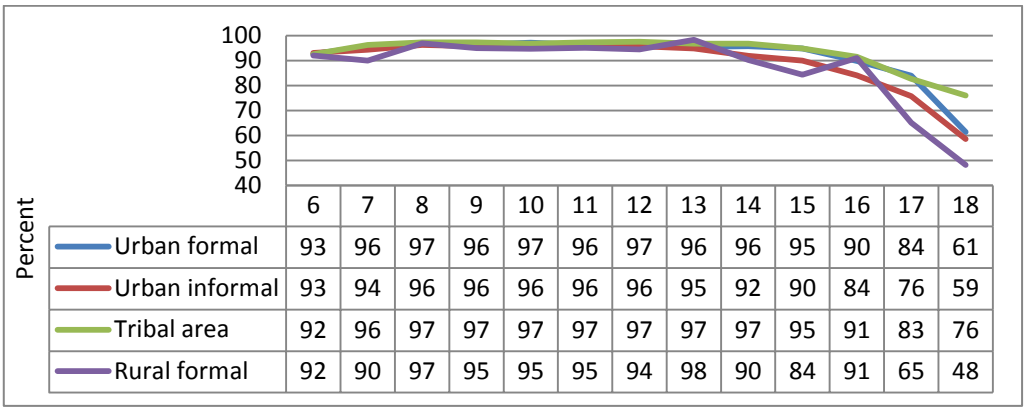
Province	6–64 years		6–24 years		6–15 years	
	Number	%	Number	%	Number	%
Western Cape	3,250,813	31.7	1,455,042	68.2	803,675	94.0
Eastern Cape	6,894,983	37.3	3,354,610	73.9	1,771,123	94.9
Northern Cape	888,633	27.0	350,685	65.5	180,945	93.6
Free State	2,475,151	32.0	1,052,638	72.2	533,055	96.4
KwaZulu-Natal	8,634,857	38.3	4,441,452	71.9	2,372,506	94.8
North West	2,840,515	34.5	1,298,341	72.6	703,579	94.3
Gauteng	5,641,578	36.1	2,552,315	73.8	1,410,277	95.0
Mpumalanga	5,274,018	47.3	3,010,497	82.3	1,931,454	99.6
Limpopo	1,973,317	36.3	904,609	75.8	593,499	98.5
Outside RSA	1,494,387	14.4	305,251.70	62.0	125,310	90.8
Total	**39,368,251**	**36.5**	**18,725,440**	**73.9**	**10,425,422**	**95.86**

(Statistics South Africa, 2008a)

Analysis of school attendance by place of usual residence shows that more individuals staying in tribal areas attended school than the other areas. This scenario is not good for the country where the urban informal areas can be a source of the urban poor and urban crime due to limited activities.

The proportion of those in rural areas who attended school was higher than those living in urban areas. This is an interesting finding as the expected pattern would be the reverse. This is as a result of diverse challenges faced by children in urban areas. The finding contradicts a study quoted by Dieltiens et al. (2009), which revealed that domestic and agricultural chores and long distances to schools often ate into the school day and resulted in high levels of absenteeism.

This further related to the lack of secondary schools closer to homes in rural areas and the cost of transport, which are some of the perceived reasons for learners dropping out of school (Statistics South Africa, 2012).



	6	7	8	9	10	11	12	13	14	15	16	17	18
Urban formal	93	96	97	96	97	96	97	96	96	95	90	84	61
Urban informal	93	94	96	96	96	96	96	95	92	90	84	76	59
Tribal area	92	96	97	97	97	97	97	97	97	95	91	83	76
Rural formal	92	90	97	95	95	95	94	98	90	84	91	65	48

Figure 4.3: School attendance by age group and geographical type, 2007

(Statistics South Africa, 2008a)

Figure 4.3 provides insights into school attendance focusing on those aged between 6 and 18 years. The proportions of those attending school were high across all the geographical types. The differences, however, begin at around 16 years of age with differences as high as 7%.

The proportion of those attending school also falls considerably from above 90% at the age of 16 to below 48% at the age of 18 among those in rural formal areas. All geographical types experience a drop in school attendance by age.

What is surprising was that the gap between rural formal and tribal areas, which are also rural, was large at the age of 18 years, estimated at 28%. Enrolment remains high up to the age of 15 years, dropping progressively from age 16 years. A substantial proportion of youth remains in school well beyond 18 years of age. Despite this, levels of completion of a matric remain low (Dieltiens & Meny-Gilbert, 2009).

4.1.2 Predictors of school attendance

Predictors of school attendance were measured as the first step in the investigation of how the life circumstances and service delivery changed in relation to education over the period 1994-2007. Both logistic regression and the probit models were run in the analysis of school attendance. This was mainly because of the dichotomous variable on school attendance. The predictive analysis included only those aged 6 to 16 years, which is the compulsory education cohort.

The models used the coloured population group as the reference category for the population group. The findings show that the coloured population group had the lowest likelihood of attending school compared with other population groups. The probit results for children aged 6 to 18 years showed that Africans had the highest probability of attending school compared to coloureds.

The logistic regression results show that the white population were three times, while Africans were two times more likely to attend school as compared with the coloured population group. The findings confirm the argument by Van der Berg et al. (2007) that poorer schools struggle to attract well-qualified teachers. Good teachers are scarce and it is difficult to convince them to work in poor areas and townships.

Overall, whether based on the probit or logistic regression, the likelihood of attending school among those aged 6 to 16 years showed that the coloured and African population groups had the least likelihood of attending school, followed by the Indian/Asian population group. Whites have the highest likelihood of attending school, controlling for other factors.

For the geographical type, the rural formal type was taken as the reference category. Children staying in rural areas had the highest likelihood of attending school (Sheppard, 2009). For analysis by province, Eastern Cape was taken as the reference category.

The results show that children in Mpumalanga had the highest probability of being in school compared with those residing in Eastern Cape. The second and third

provinces with children having a higher likelihood attending school were Limpopo and Free State, respectively. Age was included as a factor for school attendance. The results show that the older an individual becomes, the less likely they are to attend school (Dieltiens & Meny-Gilbert, 2009).

Table 4.4: Logistic and probit regression of school attendance

Variable	Probit		Logistic	Logit	
	dF/dx	P>|z|	Odds ratio	Coef.	P>|z|
African	0.0488	0.000	1.988	0.687	0.000
Coloured					
Indian/Asian	0.0238	0.000	1.617	0.481	0.000
White	0.0413	0.000	2.944	1.080	0.000
Urban formal	0.0488	0.000	2.407	0.878	0.000
Urban informal	0.0192	0.000	1.497	0.404	0.000
Traditional area	0.0498	0.000	2.534	0.930	0.000
Rural informal			1.000		
Western Cape	0.0107	0.000	1.216	0.196	0.000
Eastern Cape			1.000		
Northern Cape	0.0017	0.621	1.033	0.033	0.558
Free State	0.0240	0.000	1.646	0.498	0.000
KwaZulu-Natal	0.0081	0.000	1.170	0.157	0.000
North West	0.0062	0.010	1.137	0.129	0.003
Gauteng	0.0186	0.000	1.461	0.379	0.000
Mpumalanga	0.0611	0.000	7.280	1.985	0.000
Limpopo	0.0434	0.000	3.332	1.203	0.000
Age	-0.0223	0.000	0.664	-0.410	0.000
Constant				6.911	0.000

Own analysis of Community Survey 2007

(Statistics South Africa, 2008a)

4.1.3 Changes and disparities in educational attainment

The second area of analysis of education was educational attainment, which relates to the highest level of schooling completed by individuals. In the analysis, educational attainment was divided into six groups. The first category comprises those who never went to school, referred to as no schooling. The second category is made up of those who went to school but could not finish the first educational cycle (primary school). The third category comprises those who have completed primary education, which is the first educational cycle, but did not continue to higher levels.

The fourth category comprises those who continued after primary school but were unable to complete the second cycle. The fifth category is those who finished the second cycle, i.e. Grade 12/Standard 10. The last group comprises those who finished the second cycle of education and joined either universities or other higher institutions of learning, such as technical colleges (Lloyd and Hewett, 2009).

Most of the individuals in the age cohort 25 to 64 years had some secondary education, accounting for slightly more than one in three within the population, as shown in Figure 4.3. The figure further shows that one in five had higher educational levels than Grade 12. One in four persons had either no schooling or just some level of schooling.

A small proportion with completed primary schooling and a high proportion (9%) with no schooling have far-reaching implications in South Africa. Ironically, South Africa's class-based schooling system may help to keep learners in school. Where learners are equally poor, social exclusion of poor learners is less likely.

While the results of many studies of education and poverty need to be further explored and tested more extensively, the disparities and policy implications are sobering (Dieltiens & Meny-Gilbert, 2009).

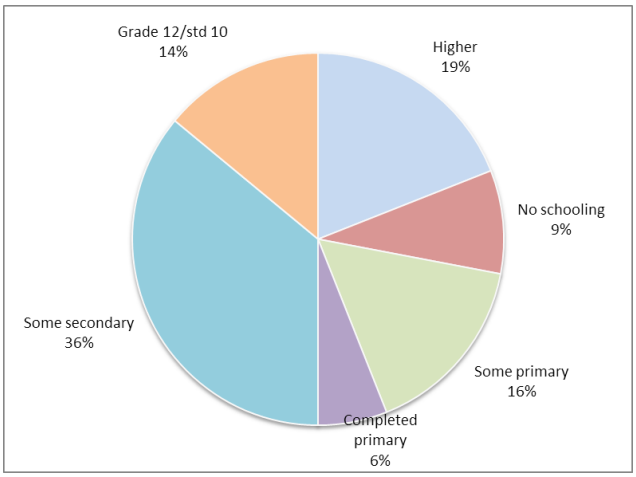


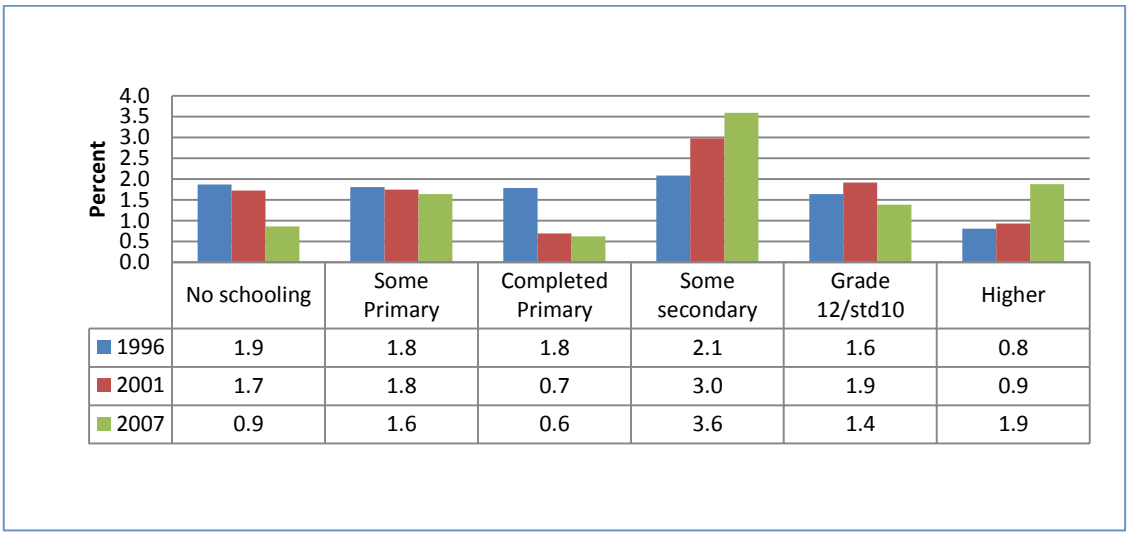
Figure 4.4: Educational attainment, 25–64-years age group, 2007

(Statistics South Africa, 2008a)

Figure 4.4 presents trends in educational attainment in 1996, 2001 and 2007. Overall, the proportion of those without any level of schooling has been reducing, from almost one in five (19%) in 1996 to less than one in ten (9%) in 2007. The proportion of those with some primary education has marginally reduced by less than 2% from 18% in 1996 to 17% in 2007. The biggest reduction was observed among those not completing primary education, which declined threefold (from 18% to 6%) between 1996 and 2007.

Over the years, there was an increase in the proportion of people with some secondary level of education. Whereas educational attainment is in a positive direction, programmes should be put in place to ensure that individuals do not drop out at this level of school but continue to get a qualification or a trade.

Dropping out of school is highly influenced by the compositional makeup of schools, the constraints that poverty exerts on schools, the capabilities of teachers and the nature of educational markets in such areas (Raffo et al., 2007).



	No schooling	Some Primary	Completed Primary	Some secondary	Grade 12/std10	Higher
1996	1.9	1.8	1.8	2.1	1.6	0.8
2001	1.7	1.8	0.7	3.0	1.9	0.9
2007	0.9	1.6	0.6	3.6	1.4	1.9

Figure 4.5: Trends in educational achievement, 2007

(Statistics South Africa 1998a; 2004)

Worryingly, the proportion of those completing secondary-level education has also been decreasing. The implications for this may be twofold. First, that many individuals drop out of school at this level because it is not compulsory. Other major factors for not completing schooling include fees and teenage pregnancy. Second, the decrease may be attributable to the fact that of those who succeed in completing secondary level, not many advance to higher institutions of learning.

According to Dieltiens and Meny-Gilbert (2009), only 44% of enrolled learners complete matric, and in their research, teenage pregnancy was found to be a major problem for girls not completing secondary education. Other issues were that learners were faced with access costs such as uniforms and transport in particular (Dieltiens & Meny-Gilbert, 2009). When learners do not complete matric, their prospects for employability become minimised as they grow up.

A positive finding was that the proportion of those completing higher levels is on the increase over the period. However, this proportion is still low if compared to the skilled labour requirements, such as financial management, engineering and other maths and science related fields. The increasing proportions for higher education completion have been observed in the results of the General Household Survey 2002–2012 (Statistics South Africa, 2012c) and Census 2011 (Statistics South Africa, 2012a).

Some progress has been made as far as higher education is concerned, but many people are left behind and many people do not go back to school and never get a chance to be employed. These are found mainly in the group of people who are said to be not in education, employment or training (NEET).

The results of the Quarterly Labour Force Survey for quarter four of 2011 indicated that there are 3.3 million young people (aged between 15 and 24 years) in this category, out of the overall 4.6 million unemployed people in the country.

A comparison of educational attainment by gender shows that there are no significant differences in educational attainment between males and females, as shown in Figure 4.6. This implies that there is no gender discrimination as far as school attainment is concerned and this is a substantial achievement.

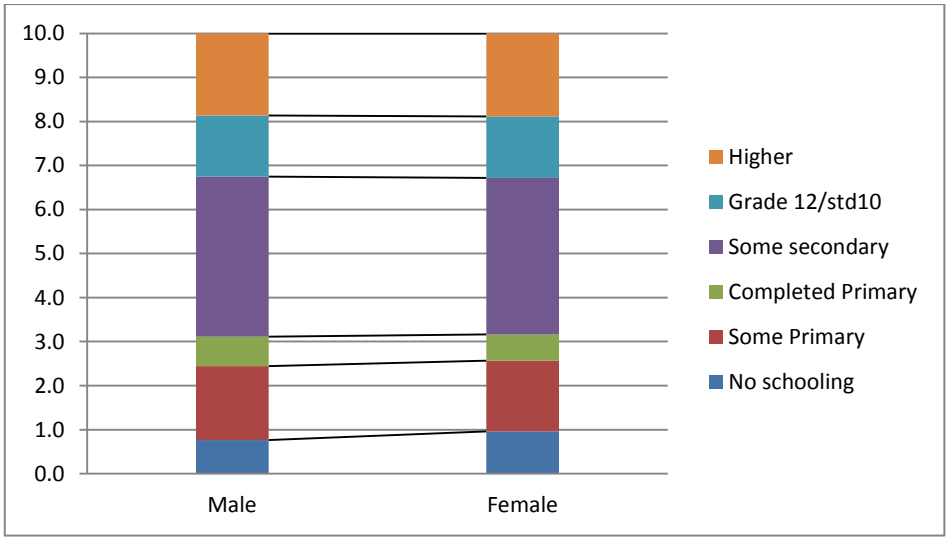


Figure 4.6: Educational attainment by gender, 2007

(Statistics South Africa, 2008)

While the factors that either keep individuals in or out of school affect both genders equally, issues like pregnancy and caring for family members affect girls more than they do boys. Looking after cattle and family shops affects boys more than it does girls (Raffo et al., 2007). Therefore, the social circumstances and family circumstances have a bearing on how far young people can go in school attendance.

According to Taylor et al. (2012), evidence shows that formal education can equalise the effects of different family backgrounds and, in particular, will offer a route out of poverty for the most disadvantaged young people. Evidence over the decades and from many countries seems to show that family background continues to be a major determinant of educational outcomes for young people. The poorer the child's family, the less likely they are to do well in the educational system (Raffo et al., 2007).

Analysis shows that disparities in school attainment exist across the different population groups. Most African and coloured people fall into the same educational category, with high proportions of people with some primary school attainment. This finding should be interpreted notwithstanding the fact that the highest population is among the African population group. On the other hand, the Indian/Asian population group has more than half of the people who have Grade 12/Standard 10 or higher.

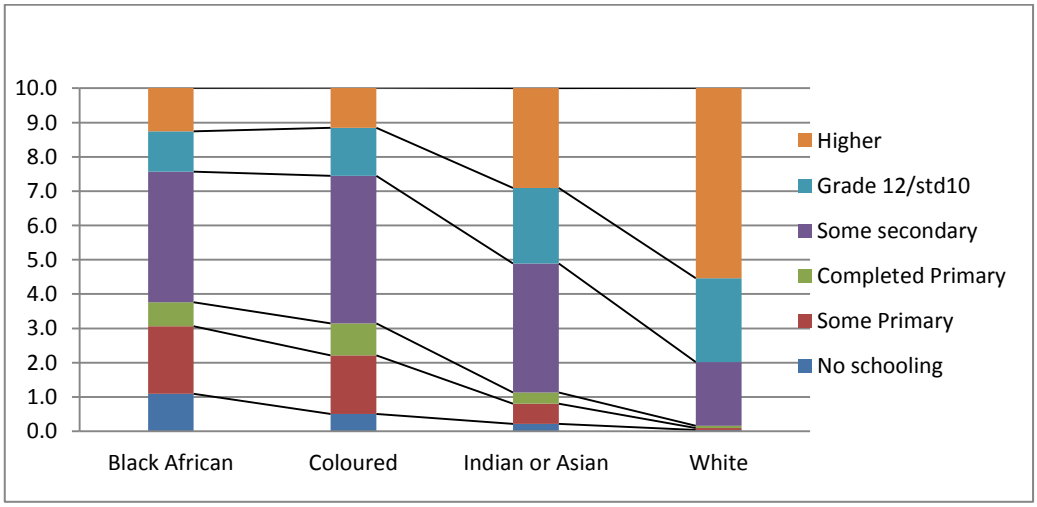


Figure 4.7: Educational attainment by population group, 2007

(Statistics South Africa, 2008a)

Analysis of population group disparities shows that three in every ten people among Indians/Asians have a higher academic qualification as compared to the African and coloured population groups (Woolard, 2002). This finding should be

understood in the context that Indians/Asians make up only 2% of the total population.

The white population group remains the most advantaged in relation to academic achievement. More than 50% of whites (one in every two) had a higher qualification post-matric. Among whites, the 'no schooling' category and 'some primary' are almost non-existent.

The racial disparities in educational attainment have been observed in the General Household Survey 2011 (Statistics South Africa, 2012c) and Census 2011 (Statistics South Africa, 2012a). This can be related to the history of the white and Indian/Asian population groups having been able to have higher educational attainment as compared to the African and coloured population groups. History and the head start for the two population groups are evident.

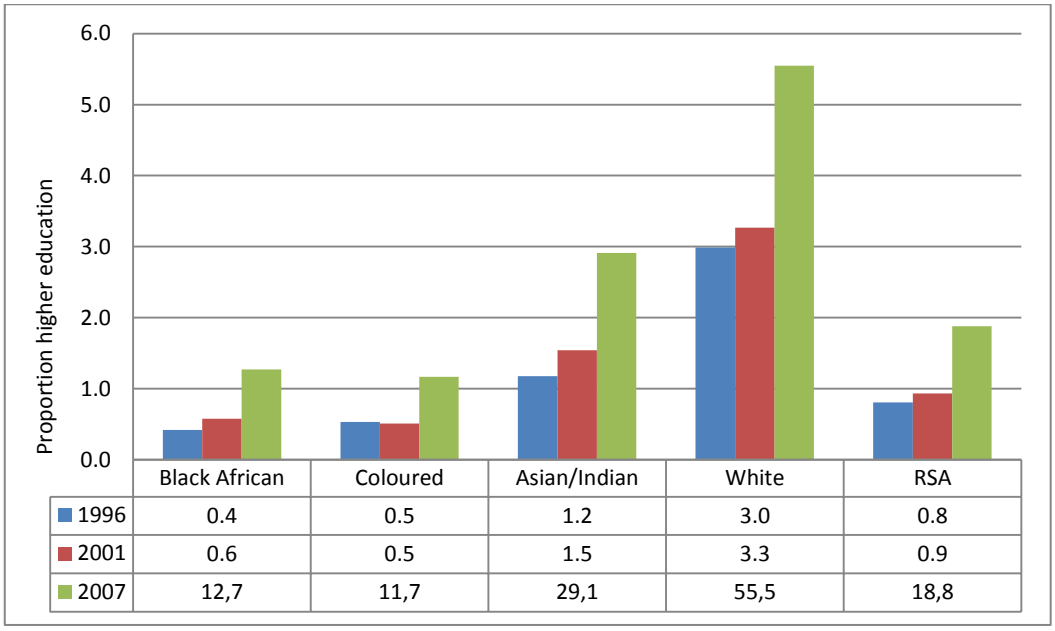
Figure 4.7 presents trends in educational attainment since 1996 for persons aged 24 to 64 years. Whereas the apartheid era is assumed to have favoured whites, only one in three had a higher educational qualification based on the 1996 Census (Statistics South Africa, 1998); this has since improved. One in two whites aged 24 to 64 years had a higher qualification in 2007. The figures also show that wide educational variations occurred and continue to occur over time. Of the African population group, 4% had a higher qualification in 1996; this rose slightly to 6% in 2001 and more than doubled by 2007 to 13%.

Educational achievement at higher levels among the coloured population group decreased between 1996 and 2001, but rose in 2007. Although the proportion of the coloured population group who had a higher educational qualification was slightly higher than that of the African population group in 1996, they are still progressing at a slow pace.

The proportion of the coloured population with high educational attainment is still low. This means that targeted action is essential to ensure that they acquire and improve their academic qualifications. The proportion of the Indian/Asian

population with higher educational attainment has been increasing steadily over the period 1996 to 2007. It increased from 12% to 29% in 2007 (Figure 4.8).

Whites have maintained high educational levels compared with the other population groups, but it is not yet universal, which should be the goal; hence, the country can still do better. The Census 2011 (Statistics South Africa, 2012a), and General Household Survey 2011 (Statistics South Africa, 2012c) data shows the same picture.



	Black African	Coloured	Asian/Indian	White	RSA
1996	0.4	0.5	1.2	3.0	0.8
2001	0.6	0.5	1.5	3.3	0.9
2007	12,7	11,7	29,1	55,5	18,8

Figure 4.8: Educational achievement by population group

(Statistics South Africa, 1998a; 2001; 2008a)

Based on the Community Survey 2007 (Statistics South Africa, 2008a), gender disparities have been observed across the population groups at higher age groups above 15 years. Among the African population group, females (14%) had a slightly higher educational attainment than males (12%). For those with no education, females had a higher proportion at 12%, while males were 9%. Among the coloured population group, the same proportion of females to that of males had no schooling.

Males were more advantaged than females among the white population group. For example, although whites have the highest proportion of individuals with a higher

educational level estimated at 56%, it was 60% among males and 52% among females, a difference of 8%.

At lower levels, the proportion may seem to be small, but the females have higher percentages than males across the population. It was also observed that at Grade 12/Standard 10, females have a noticeably higher proportion than males (Sheppard, 2009).

The proportion of those attaining higher educational levels over time increased across all population groups. However, the increase was not uniform across the different population groups or sexes. The lowest increment in the proportion with higher levels of education was among the African men, which stood at 4% in 1996, increased to 5% in 2001 and 12% in 2007. The proportion of African women with higher educational levels increased slightly more than that of African men, from 4% in 1996 to 14% in 2007 (Sheppard, 2009).

Of those with no schooling, little change was recorded among the coloured population group as it decreased from 10% and 10% to 5% and 5% for men and women in 1996 and 2007, respectively.

The proportion of the coloured population attaining higher educational levels increased at a slower pace than that of other population groups. Whereas in 1996, the proportion of the coloured population with higher educational attainment was greater than that of Africans, both men and women; in 2007, the proportion of coloured males and that of the African population were the same, while for African women, it was greater than that of coloured women.

In 1996, white men and women with primary education or below comprised 5% and 5%, respectively. This is an indication that in relation to school attendance, there were no gender disparities among whites at entry level. The differences were only noticeable at higher levels, that is, the completion rate was better for men than for women. This is in contradiction with an argument that the white population group has showed the greatest educational attainment among females (Woolard et al., 2005).

Table 4.5: Educational attainment by population, by gender

	1996			2001			2007		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
African	**5,276,946**	**6,050,610**	**11,327,556**	**6,619,226**	**7,563,589**	**14,182,815**	**7,600,278**	**7,438,557**	**15,038,835**
No schooling	21.6	25.7	23.8	19.3	23.8	21.7	9.4	12.3	10.9
Some primary	22.2	20.9	21.5	21.4	19.6	20.4	20.2	19.2	19.7
Completed primary	19.5	19.6	19.5	7.7	7.6	7.7	7.7	6.4	7.0
Some secondary	19.7	19.4	19.6	29.5	28.6	29.0	38.9	37.2	38.1
Grade 12/Standard 10	12.8	10.3	11.5	16.6	14.4	15.4	12.0	11.4	11.7
Higher	4.2	4.2	4.2	5.4	6.0	5.8	11.9	13.6	12.7
Coloured	**708,369**	**793,577**	**1,501,946**	**852,006**	**972,908**	**1,824,914**	**939,495**	**1,048,857**	**1,988,352**
No schooling	9.7	9.5	9.6	7.9	7.9	7.9	5.0	5.1	5.1
Some primary	20.0	20.8	20.4	19.4	19.8	19.6	16.6	17.3	17.0
Completed primary	23.9	27.7	25.9	9.4	11.3	10.4	8.3	10.3	9.4
Some secondary	26.5	26.7	26.6	40.6	41.1	40.9	43.4	42.6	43.0
Grade 12/Standard 10	14.0	10.4	12.1	17.5	15.0	16.2	14.7	13.3	14.0
Higher	5.9	4.8	5.3	5.3	4.9	5.1	12.0	11.4	11.7

Table 4.5: Educational attainment by population, by gender (concluded)

	1996			2001			2007		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Indian/Asian	**231,658**	**252,022**	**483,680**	**283,660**	**306,215**	**589,875**	**318,123**	**383,576**	**701,699**
No schooling	2.7	7.6	5.2	2.6	5.5	4.1	1.7	2.6	2.2
Some primary	4.8	11.4	8.2	4.4	9.9	7.2	4.1	7.2	5.8
Completed primary	16.3	21.2	18.8	3.2	5.5	4.4	2.9	3.6	3.3
Some secondary	29.1	26.8	27.9	35.5	36.6	36.0	31.2	42.9	37.6
Grade 12/Standard 10	32.3	24.2	28.1	36.8	29.1	32.8	26.5	18.3	22.0
Higher	14.9	8.9	11.8	17.6	13.4	15.4	33.6	25.4	29.1
White	**352,649**	**276,953**	**629,602**	**1,135,923**	**1,215,459**	**2,351,382**	**1,299,137**	**1,379,740**	**2,678,877**
No schooling	1.0	1.1	1.1	1.2	1.3	1.3	0.4	0.5	0.4
Some primary	0.5	0.5	0.5	0.8	1.0	0.9	0.6	0.6	0.6
Completed primary	3.2	3.2	3.2	0.5	0.6	0.6	0.5	0.7	0.6
Some secondary	18.1	26.0	22.1	22.8	25.3	24.1	17.8	19.4	18.6
Grade 12/Standard 10	42.7	43.7	43.3	39.4	41.5	40.5	21.0	27.5	24.4
Higher	34.6	25.5	29.9	35.3	30.2	32.7	59.7	51.5	55.5

(Statistics South Africa, 2008a)

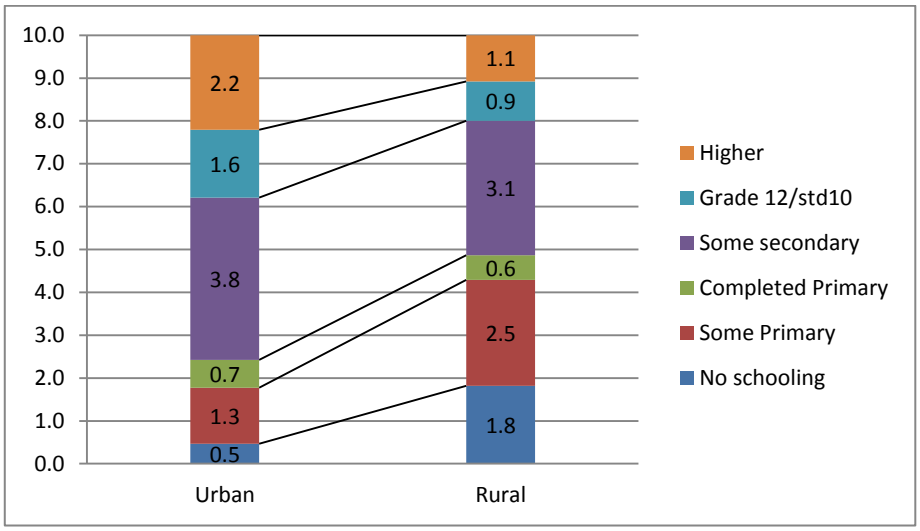


Figure 4.9: Educational attainment by rural-urban places of residence

(Statistics South Africa, 2008a)

Figure 4.9 shows educational attainment by rural-urban places of residence. Educational attainment by rural-urban areas in South Africa indicates that there are more educated people in urban areas compared to rural areas. In general, the deprivation measure finds Africans, rural dwellers and female-headed households most poor (Woolard, 2002).

The proportion of those with higher education in urban areas (22%) was twice that of rural areas (11%). Cumulatively, 50% of the rural population did not reach secondary education. When the data is disaggregated by geographical type, it is further noted that only 4% of the urban formal area among those aged 25 to 64 years had no schooling. This finding indicates the limitation of the labour force already.

The data also shows that 25% of the people staying in urban formal areas have higher qualifications compared to other settlements. Migration patterns were observed in the data indicating movement of children across different provinces. Further understanding of migration patterns, which are informed by economic choices by parents, will enrich the understanding of education and migration in future.

The findings further show that the rural areas have the highest proportion of those with no schooling, followed by the urban areas; an indication that rural areas are at a higher disadvantage as far as educational attainment is concerned, which is different from attendance and schooling opportunities. Surprisingly, at higher educational attainment level, the proportion for rural areas (17%) was closer to that of the urban areas (18%).

There is a clear indication that tribal and informal areas after secondary schooling, show declines in schooling (another dropout effect). This may be an indication of difficulties to continue with education for people in these areas as they grow above some secondary schooling, and it may also be that they migrated.

Educational attainment by province of birth shows mixed findings. Three provinces, namely Mpumalanga, North West and KwaZulu-Natal, have a proportion of those aged 25 to 64 years without any schooling of more than 10%. Two provinces have a proportion of those without any schooling of less than 5%, namely Western Cape and Gauteng. Results also indicate that Gauteng has the highest proportion of those with higher education (30%) among all the provinces.

Over 80% of the residents in Gauteng have some secondary education and above. Limpopo was also another province with high educational standards, even though it is predominantly rural. In Limpopo, 25% of the people had a higher education qualification (post-matric), with only 25% who had less than some secondary education.

Mpumalanga had the highest proportion of those with some secondary education. This is an indication that Mpumalanga has higher dropout rates at matric level than any other province. Overall, KwaZulu-Natal and North West had the lowest levels of educational attainment.

Table 4.6: Educational attainment by province

Province	Number	No schooling	Some primary	Complete primary	Some secondary	Grade 12/ Std 10	Higher
Western Cape	1,765,327	3.2	14.0	7.6	39.7	15.9	19.7
Eastern Cape	3,498,036	7.5	24.3	9.3	36.7	10.4	11.8
Northern Cape	532,191	9.6	18.3	7.6	34.0	14.4	16.2
Free State	1,409,010	6.7	21.3	7.5	33.6	12.7	18.2
KwaZulu-Natal	4,145,333	11.0	18.4	5.9	35.0	14.7	15.0
North West	1,525,745	11.0	18.3	5.9	36.4	12.8	15.7
Gauteng	3,048,574	4.6	8.2	4.1	35.6	18.0	29.5
Mpumalanga	2,255,684	11.7	13.0	3.2	44.2	9.0	19.0
Limpopo	1,055,441	5.4	16.1	4.4	30.9	18.5	24.8
Outside RSA	1,172,422	18.1	9.2	9.0	24.7	15.8	23.3
Total	**20,407,763**	**8.6**	**16.5**	**6.3**	**36.0**	**13.9**	**18.8**

(Statistics South Africa, 2008a)

Table 4.6 shows that school attendance varied across the different provinces in South Africa. The province with the highest proportion attending school among those aged 6 to 64 years (broader cohort to include the labour force) was Mpumalanga (47%), followed by KwaZulu-Natal (38%) and Eastern Cape (37%).

4.1.4 Predictors of educational attainment

Predictive analysis pertaining to educational attainment across the population was conducted to investigate how educational attainment changed in relation to demographic indicators. Multinomial regression models were run as the variable has many categories. In the multinomial logit, those with some secondary education were taken as the reference.

Rural positioning as a variable was removed due to collinearity. Income was more of an outcome than a determinant of educational attainment. For population group, the coloured population group was taken as the reference group.

Relative to having some secondary education, the coloured population has the highest likelihood of having no schooling compared to other population groups (Dias et al., 2004; Ozler, 2007; Woolard et al., 2006).

The findings further show that the white population has the lowest likelihood of having no schooling, given that many do not fall in the category of having some secondary education. For those with some primary level of education, Africans have the highest likelihood of being in this category, given that many do not have some secondary education, followed by the coloured population group.

For those who have completed primary education, Africans have the highest likelihood, followed by coloureds, given that they have lower proportions of people with some secondary educational attainment. Indians/Asians had the highest likelihood of being among those who completed Grade 12/Standard 10 or a higher educational level.

Other studies that used Statistics South Africa data regarding poverty were included in the work done by Hoogeveen and Ozler (2006), Meth et al. (2004) and Woolard et al. (2006). They argued that the rates of return to education increased only for the highly educated individuals in urban areas over the period 1995 to 2000. According to this analysis, the pattern has persisted beyond this period.

An interesting observation was that the rural and tribal areas showed higher proportions of school attendance at lower age cohorts. This can be attributable to higher numbers of young children in those areas, while access and quality may need further and deeper attention. Van der Berg et al. (2007) argued that there has been an increase in the number of successful matric candidates due to a reduction in the number of candidates, mainly due to restrictions on children above the age of 18. This occurs mostly in the rural and tribal areas.

With regard to sex, females were more likely to have no schooling and completed primary level, compared with males among those aged 25 to 64 years, taking into consideration the population group, residence by geographical type and province of birth as opposed to having some secondary education.

The lower Relative Risk Ratios (RRR) for Grade 12/Standard 10 (0.732) and higher relative risk ratios (1.183) for primary education show that males are more likely to attain these levels of education, given the fact that few males have attained some secondary education considering all factors.

Sheppard (2009) argued that post-school opportunities and their efficiency in South Africa need to be improved considerably to assist the youth in enhancing their employability. This is attributable to getting higher attainment in education by the young people in South Africa. Furthermore, the achievement of the goal of quality education and improved learning outcomes is the biggest challenge facing the education sector (Sheppard, 2009).

Analysis by place of residence had two variables, namely rural-urban and geographical type. All the RR ratios for no schooling are less than one, implying that controlling for other variables, those in rural formal areas are less likely to have no schooling than those staying elsewhere. For those with some primary education, the RR ratio is highest for those who stay in urban informal areas.

Table 4.7: Results of the multinomial logit for educational attainment

	No schooling		Some primary		Primary		Grade 12/Std 10		Higher	
	RRR	P>|Z|	RRR	P>|Z|	RRR	P>|Z|	RRR	P>|Z|	RRR	P>|Z|
Coloured vs. African/SS	0.878	0.378	1.113	0.001	1.278	0.000	0.998	0.988	0.999	0.994
Coloured vs. Indian/Asian/SS	0.871	0.629	0.640	0.000	0.770	0.000	1.873	0.004	2.941	0.000
Coloured vs. white/SS	0.372	0.000	0.580	0.000	0.732	0.000	1.173	0.411	1.431	0.116
Female vs. male/SS	1.338	0.000	0.899	0.000	1.183	0.000	0.732	0.000	0.608	0.000
Rural formal vs. urban formal/SS	0.317	0.000	1.058	0.071	0.446	0.000	2.251	0.000	2.218	0.003
Rural formal vs. urban informal/SS	0.526	0.000	1.100	0.021	0.381	0.000	1.520	0.112	1.037	0.915
Rural formal vs. tribal area/SS	0.389	0.000	0.923	0.013	0.363	0.000	0.697	0.124	0.321	0.000
Eastern Cape vs. Western Cape/SS	0.550	0.001	0.760	0.000	0.706	0.000	0.821	0.299	0.647	0.060
Eastern Cape vs. Northern Cape/SS	1.256	0.189	0.826	0.000	0.764	0.000	0.781	0.300	0.354	0.005
Eastern Cape vs. Free State/SS	0.694	0.034	0.746	0.000	0.693	0.000	0.678	0.066	0.410	0.003
Eastern Cape vs. KwaZulu-Natal/SS	0.923	0.375	0.790	0.000	0.866	0.000	1.726	0.000	1.385	0.042
Eastern Cape vs. North West/SS	1.129	0.306	0.781	0.000	0.694	0.000	1.343	0.077	1.319	0.177
Eastern Cape vs. Gauteng/SS	0.531	0.000	0.576	0.000	0.625	0.000	0.940	0.661	0.986	0.932
Eastern Cape vs. Mpumalanga/SS	0.150	0.000	1.161	0.000	0.898	0.000	0.362	0.000	0.238	0.000
Eastern Cape vs. Limpopo/SS	0.240	0.000	0.200	0.000	1.436	0.000	1.268	0.265	2.286	0.000

Note: SS – Some secondary was the relative category for school attainment.

Own analysis of Community Survey 2007

Statistics South Africa, 2008a)

Predictive analysis of educational attainment by province of birth shows varying results. Eastern Cape was taken as the reference category. Those from Limpopo and North West are more likely to have no schooling compared with those from the remaining provinces.

For those with some primary education, those staying in Mpumalanga had the highest likelihood of having some primary education. Dieltiens and Meny-Gilbert (2009), Hoogeveen and Ozler (2005), Sheppard (2009), Van der Berg et al. (2007) as well as Woolard and Leibbrandt (2006) have concluded that despite the several successes in the achievement of the goal of quality of education and improved learning outcomes, there is consistent evidence of widespread underperformance of learners, based on local assessments.

Those in Limpopo have the highest likelihood of having completed primary, completed Grade 12/Standard 10 or a higher education level. Based on the bivariate analysis, no gender differences occur in educational attainment between the African and coloured population groups, while slight differences are observed among the white population group.

Educational attainment for people in rural formal settlements is among those who completed primary education. These findings show that those in rural formal settlements are more likely to have completed primary education, given that most of them do not have some secondary education.

The results from the descriptive and predictive models indicate the importance of education in the prospects of being either poor or non-poor. Eastern Cape has been identified as the most disadvantaged province, followed by North West and Limpopo. The lowest relative risk ratios for the white population group continues to support the evidence that whites are better off in education and in living conditions based on education.

4.2 Employment

4.2.1 Changes and disparities in employment

Measuring changes and disparities in employment forms part of interrogating the key determinants that have influenced poverty and inequality in the post-apartheid era. Employment status was identified as the second leading variable or determinant of poverty and inequality used in the analysis. The first comparative analysis was done on levels of employment in relation to educational attainment. Analysis was based on data from the Community Survey 2007 (Statistics South Africa, 2008a).

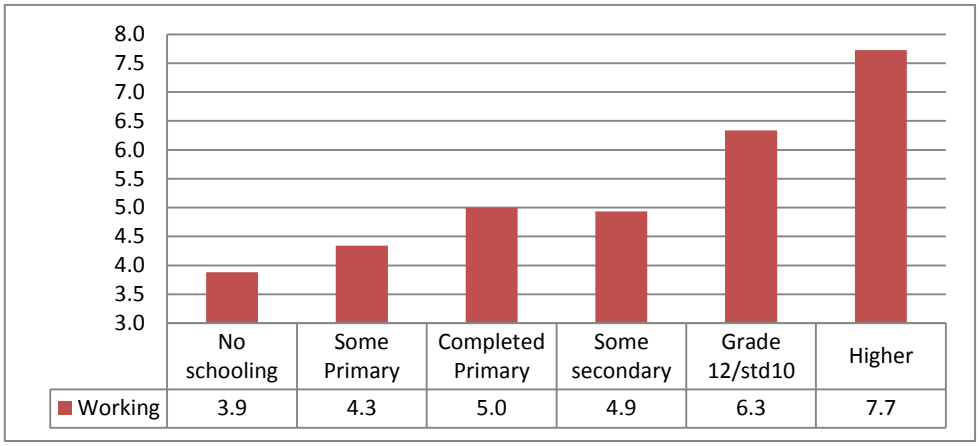


Figure 4.10: Proportion working by educational attainment

(Statistics South Africa, 2008a)

Analysis of employment levels was done first in relation to educational levels. Of persons who have no schooling, 39% were employed, while 77% of persons with higher educational attainment were in employment (Figure 4.10).

The proportion of those working (irrespective of educational attainment) varies for the different population groups; the lowest was among Africans and highest among whites. The highest variation in working status is among the Indian/Asian community from 19% among those without any schooling to 81% among those with higher educational attainment (Sheppard, 2009).

Table 4.8: Employment status by educational attainment, geographical type, rural-urban area, 2007

	Urban	Rural	Urban formal	Urban informal	Tribal area	Rural formal
Total	**14,438,372**	**5,969,390**	**12,528,770**	**1,909,603**	**4,726,985**	**208,711**
No schooling (%)	44.6	35.3	46.0	38.9	33.8	41.9
Some primary (%)	47.2	38.6	45.6	53.0	32.8	57.3
Completed primary (%)	54.3	38.3	49.5	68.6	29.8	68.9
Some secondary (%)	51.4	43.5	52.6	44.5	40.3	64.2
Grade 12/Standard 10 (%)	67.5	45.9	68.4	57.2	32.4	81.6
Higher (%)	78.3	71.9	78.8	63.0	63.7	89.0
Total (%)	**59.2**	**43.8**	**60.5**	**51.0**	**38.2**	**65.2**

Note: The percentages not shown are those not working

(Statistics South Africa, 2008a)

The comparison between rural and urban place of residence shows that a higher proportion of those in urban areas were working compared to those in rural areas at any level of education. The gap (between rural and urban place of residence) in the proportion of people working is highest among those with Grade 12/Standard 10, followed by those who completed primary and lowest among those with higher educational attainment.

Considering residence by geographical type, further analysis showed that the proportion of the population working varied according to type of residence. The proportion employed is lowest among those in the rural areas at 38%. This finding is in agreement with Woolard (2002).

Variations were also observed by gender, across population groups. The highest proportion of working persons was among the white population (77%), followed by the coloured population group (59%) and lowest among the African population group (50%). The population group with the lowest working female population was the Indian/Asian group, where only 39% were working, followed by African women at 41%.

White women had the highest proportion among women who were working (68%). Among the males, 87% of white males were working, followed by Indian/Asian males (76%) and lowest among the African males at 58%. This is in agreement with Sheppard (2009).

Table 4.9: Employment status by population group and gender, 2007

Population group	Men		Women		RSA	
	Number	%	Number	%	Number	%
African	7,643,384	58.3	7,505,218	41.4	15,148,602	49.9
Coloured	948,743	68.6	1,057,995	50.4	2,006,738	59.0
Indian/Asian	321,354	76.4	385,450	38.8	706,804	55.9
White	1,304,136	87.2	1,388,492	68.1	2,692,628	77.3
Total	**10,217,617**	**63.5**	**10,337,155**	**45.8**	**20,554,772**	**54.6**

(Statistics South Africa, 2008a)

These differences in job opportunities may be a result of education achievements within the different population groups.

Analysis of employment by sex indicates that irrespective of race, the proportion of working women is less than that of working men for all the population groups. The Indian/Asian population group depicts the greatest discrepancy in employment. Another observation was that the proportion of working white females is more than the proportion of working African males.

Among the population aged 25 to 64 years, those who were working varied by sex. Among men, about two-thirds (64%) were working compared to less than half (46%) of women. Among men, the proportion in employment increases with educational level, from 42% among those without any level of schooling to as high as 83% among those with higher educational levels. Van der Berg et al. (2007) argued that backlogs in education among the poor leave them with less education and poorer in terms of quality of education.

The proportion of people working rises further among the different population groups among those with some secondary level of education (Sheppard, 2009). Among individuals with some secondary education, the proportion employed among males is lowest among the African population group (58%) and for the females, lowest among Indian/Asian females (21%).

For those with complete secondary and higher education, the proportion working was lower across the population groups for African males and females. Within each population group and educational category, the proportion of males working is higher than that of females, irrespective of population group.

There is a lower proportion of female Indian/Asian working among those with no education or low educational attainment. This trend reverses at secondary and higher educational levels. At high levels of educational attainment, the proportion of Africans working reduces compared to other population groups.

The high proportions of working Africans provide a reflection of working in jobs that do not require skills. Quarterly Labour Force Survey statistics since 2008 have indicated higher proportions of African population groups in occupations such as elementary and private households (Statistics South Africa, 2012e).

The interface between educational attainment and employment paint a bleak picture across the population. The two development indicators have been identified as the key determinants of poverty and inequality since 1994. Educational attainment and employment are the key drivers of how people progress in life. The changes that have been observed indicate negative results for African and coloured population groups.

Disparities in education and employment manifest themselves across the population in relation to demographic indicators showing negative and less progressive impact on the uneducated individuals. The observed negative outcomes of education and employment are the key determinants of poverty and inequality across the population since 1994.

Table 4.10: Employment composition of population by province, group and age

	Number	Male	Female	Sex ratio
		10,513,437	10,452,839	100.6
Western Cape	2,598,981	48.3	51.7	93.5
Eastern Cape	2,355,850	44.4	55.6	79.8
Northern Cape	481,968	49.3	50.7	97.4
Free State	1,247,900	48.4	51.6	93.8
KwaZulu-Natal	4,057,052	45.9	54.1	84.9
North West	1,482,646	51.9	48.2	107.7
Gauteng	5,444,169	50.3	49.7	101.1
Mpumalanga	3,297,710	60.7	39.3	154.5
RSA	**20,966,276**	**50.1**	**49.9**	**100.6**
Population group				
African	15,451,436	51.0	49.1	103.9
Coloured	2,057,853	47.7	52.3	91.3
Indian/Asian	713,533	45.5	54.5	83.6
White	2,743,454	48.6	51.4	94.6
RSA	**20,966,276**	**50.1**	**49.9**	**100.6**
Age group				
25–29 years	3,913,393	49.1	50.9	96.3
30–34 years	4,007,604	55.1	44.9	122.9
35–39 years	3,213,992	48.9	51.1	95.9
40–44 years	2,967,443	50.7	49.4	102.6
45–49 years	2,319,563	48.1	51.9	92.6
50–54 years	1,850,072	50.0	50.0	100.2
55–59 years	1,611,062	46.5	53.5	86.8
60–64 years	1,083,148	47.9	52.1	91.9
RSA	**20,966,276**	**50.1**	**49.9**	**100.6**

(Statistics South Africa, 2008a)

Disaggregation of employment levels by sex of household head showed that female household heads are 41%, which is more than the male-headed households (23%) under informal employment status.

Whereas there are only 59% of females in formal employment, their male counterparts constitute 77%. The distribution of employment was also analysed for type of dwelling, and results were that there are more informally employed people living in traditional settlements at 59% compared to only 24% and 38% who live in formal and informal settlements, respectively.

Disaggregation of employment status, according to the province of birth, revealed that there were more people in informal employment in Eastern Cape at 36%, followed by Mpumalanga at 32%, Limpopo at 32%, KwaZulu-Natal at 30%, North West at 28%, Free State at 27%, Northern Cape at 25%, Gauteng at 19%. The lowest informal employment status was recorded in Western Cape at only 17%.

On the other hand, the highest ranked province with regard to formal employment status is Western Cape with 83%, followed by Gauteng at 81%. The lowest ranked province was Eastern Cape, representing a formal employment status of only 64% in the country (Ozler, 2007).

Table 4.11: Labour employment status against population group, sex and type of dwelling

Labour employment status	Population group				Sex		Type of dwelling		
	African	Coloured	Indian/Asian	White	Male	Female	Formal	Traditional	Informal
Informal	29 562	2 870	435	1 491	20 585	13 773	20 830	4 820	7 354
	33.1	21.86	12.69	8.4	22.85	41.07	23.83	58.78	38.26
Formal	59 753	10 257	2 994	16 256	69 499	19 761	66 580	3 380	11 868
	66.9	78.14	87.31	91.6	77.15	58.93	76.17	41.22	61.74

(Statistics South Africa, 2008a)

4.2.2 Predictors of employment

Van der Berg et al. (2007) emphasised the impact of educational backlog on the poor, being reinforced in the labour market. This further supports inequality and poverty through the labour market. Analysis of employment status varied with population group, sex and type of dwelling. The results of the relationships were all significant at 95% confidence interval with p<0.000. Findings of this study show that for population groups, Africans dominate the informal sector at 33%, compared to 22%, 13% and 8% for coloured, Indian/Asian and white groups, respectively.

Table 4.12: Logistic regression model for labour employment status

Labour employment status	Odds ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Population group	1.120759	0.0817003	1.56	0.118	0.9715426	1.292893
Marital status	0.812204	0.0261880	-6.45	0.000	0.7624644	0.8651878
Sex	0.806513	0.1093307	-1.59	0.113	0.6183332	1.051962
Born province	1.037593	0.0228255	1.68	0.093	0.9938063	1.083308
Disability	1.573759	0.5801759	1.23	0.219	0.7640779	3.241447
Educational level	2.124064	0.1276918	12.53	0.000	1.887974	2.389676
Type of dwelling	1.142501	0.0754849	2.02	0.044	1.003732	1.300455
Income category	2.160891	0.2454703	6.78	0.000	1.729574	2.699769

Own analysis of Community Survey 2007

(Statistics South Africa, 2008a)

The trend is reversed for the formal employment status, with Africans reporting only 67% compared to 78%, 87% and 92% for coloured, Indian/Asian and white groups, respectively. The demand for labour is unlikely to change in favour of the poor and unskilled labour, which means the situation is likely to persist unless the educational quality is improved (Van der Berg et al., 2007). The results of the logistic regression model in Table 4.12 highlight the relationship between employment, education and income. The two variables that are attributable to odds of being employed from this model are educational level (2.124054) and income (2.1600891).

Table 4.13: Mean predicted probability for labour employment status

Labour employment status	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal	0.110195	0.002039	0.1061971	0.114194
Predicted formal	0.889805	0.002039	0.8858064	0.893803

Own analysis of Community Survey 2007
(Statistics South Africa, 2008a)

The predicted probability using the Community Survey data for the year 2007 (Statistics South Africa, 2008a) revealed that generally, the probability of a person belonging to the informal employment status is 11 (Table 4.13). For every 10 South Africans employed, one of them works in the informal sector. This is not good for an economy, given that informal sector employment is characterised by high levels of poverty and economic insecurity (Austin, 2006).

The probability of being employed in the formal sector remains higher in South Africa. The distribution of employment status was also analysed for type of dwelling, and results showed that there are more people who were informally employed in traditional settlements at 59% compared to only 24% and 38% living in formal and informal settlements, respectively (Woolard et al., 2006).

Analysis of employment status according to province revealed that there were more people in informal employment in Eastern Cape at 36%, followed by Mpumalanga at 32%, Limpopo at 32%, KwaZulu-Natal at 30%, North West at 28%, Free State at 27%, and Gauteng at 9%. The province with the lowest percentage of informal employment was Western Cape at 17%. This confirms arguments by authors such as Hoogeveen and Ozler (2005), Meth (2006), Van der Berg et al. (2007) as well as Woolard and Leibbrandt (2006).These authors have previously indicated disparities in levels of employment across provinces, favouring economic hubs for formal employment.

Table 4.14: Variation of predicted probability for labour employment status over household income category

Over	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal				
Low	0.165127	0.003143	0.1589657	0.171289
Medium	0.039758	0.000844	0.0381027	0.041413
High	0.014594	0.001316	0.0120139	0.017175
Predicted formal				
Low	0.834873	0.003143	0.8287109	0.841034
Medium	0.960242	0.000844	0.9585871	0.961897
High	0.985406	0.001316	0.9828251	0.987986

Own analysis of Community Survey 2007

(Statistics South Africa, 2008a)

Table 4.15: Variation of predicted probability for labour employment status over sex

Over	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal				
Male	0.088387	0.002157	0.0841588	0.092616
Female	0.150566	0.003961	0.1427991	0.158332
Predicted formal				
Male	0.911613	0.002157	0.907384	0.915841
Female	0.849434	0.003961	0.8416677	0.857201

Own analysis of Community Survey 2007

(Statistics South Africa, 2008a)

Gender disaggregation of employment status showed that female household heads are 41% more likely than are male-headed households, at 23%, to be in informal employment. Only 59% of females are in formal employment, while the male counterparts constitute 77% in formal employment.

Predictor variables tested include population group, marital status, sex, province, educational level, type of dwelling and income category. Testing for the significance of their coefficients revealed that the variables, marital status, educational level, type of dwelling and income for employment model were significant at $\alpha < 0.05$. This implies that in order to develop better labour policies in South Africa, emphasis needs to be made to improve the significant indicators such as marital status, educational level, type of dwelling and income (Woolard et al., 2006).

Predicted probability for employment status varies as household income varies. Results show that those working in the informal sector are less likely to have high incomes. Conversely, those employed in the formal sector category are very likely to earn more compared to their counterparts in the informal sector category. It has been noted that only under 2% of those employed by the informal sector earn a high income (>R12,800) compared to 99% employed by the formal sector.

Predicted probability for employment by sex of the household head indicates that females in South Africa dominate informal-sector employment, while male respondents dominate the formal-sector employment. It has been observed that 15% of females are in informal-sector employment compared to only 8% of their male counterparts (Table 4.15). This shows that for every one man there are two women found in informal-sector employment. This confirms that there is quite a lot to be done by the government of South Africa to create some level of gender balance in the labour force, especially the informal sector.

The variation of the predicted probability for employment status by the type of dwelling (formal, traditional and informal categories) showed that the probability of a person chosen at random from the traditional dwelling status and belonging to an informal category of employment is 24% compared to 19% and 10% for the informal and formal dwelling categories, respectively. This implies that for every 100 people living in a traditional type of dwelling, 24 have informal employment status.

Approximately a quarter of the population belonging to traditional settlements is working in the informal sector. This shows that people living in traditional settlements are vulnerable to poverty and its related characteristics. All the above characteristics are confirmed by Landman (2003), who argued for an expanded labour market in South Africa for progress to be made. Based on the arguments on the state of the South African labour market by Landman (2003), the long-term view of the labour market moves in tandem with the economic growth. He argues that it cannot happen that the labour market can expand in a shrinking economy.

Eight significant indicators influence the status of labour employment in South Africa. These are household size, income category, marital status, type of dwelling, level of education of the household head, gender, population group and province. In order to improve labour force status and raise the incomes of employees, effort should be made to target low-income households, traditional types of dwelling, female-headed households and African communities. As noted from the analysis above, African communities dominate the informal sector.

4.3 Household income

After the interrogation of education and employment status across the population, the next focus area is household income. Analysis of patterns and changes in household income was based on data from Community Survey 2007 (Statistics South Africa, 2008a).

Income has been classified into four categories, namely no income, those earning some income between R1,00 and R12,800 and those above R12,800. The last category is for those who did not respond to the question. Income data should always be interpreted with caution, as respondents normally under-report their income (Statistics South Africa, 2008b).

4.3.1 Changes and disparities in household income

Changes and disparities in household income is an indicator that relates to political economic distortions in the structural theoretical framework of poverty. It was interrogated amongst the indicators for life circumstances. The results showed that the majority of the population continues to live on very small incomes for their survival.

It should be noted that in 2006, the per capita income in South Africa was estimated at US$5,390 per annum according to the report from the Bureau of African Affairs (2013). The findings show that 775 per 1,000 (78%) persons aged 15 to 65 years earn less than the estimated per capita income of 2006 (R3,690).

The data depicts that 42% of the population has no income (Table 4.16), but this is usually due to under-reporting of income in households. The data further reveals that less than 15% earn more than the per capita income. In a province whose African population is 80% or more, the proportion of the population aged 15 to 65 years (both male and female) without an income is over 40%. The exception is Northern Cape, where the proportion of the coloured population group is estimated at 54%, implying that adding the coloured and African populations, it will still be above 80% (Statistics South Africa, 2008a).

From the results, it was observed that more than 50% of respondents residing in Eastern Cape reported no income (Figure 4.11). This is followed by Limpopo with 49% and Mpumalanga with 45%. On the other hand, those who earned above R12,801 are mostly in Gauteng. It needs to be emphasised that during the survey, the proportion of the distribution of the population within the provinces varied by population group, with certain provinces having a higher concentration of particular population groups (Statistics South Africa, 2008a).

Table 4.16: Percentage distribution of population by income

Income level	Population	%	Cumulative
No income	10,416,505	41.9	41.9
R1,00–R400	1,057,620	4.3	46.2
R401–R800	1,732,528	7.0	53.1
R801–R1,600	3,906,109	15.7	68.8
R1,601–R3,200	2,150,969	8.7	77.5
R3,201–R6,400	1,657,937	6.7	84.2
R6,401–R12,800	1,242,083	5.0	89.2
R12,801–R25,560	578,245	2.3	91.5
R25,601–R51,200	253,425	1.0	92.5
R51,201–R102,400	77,105	0.3	92.8
R102,401–R204,800	35,989	0.1	92.9
R204,801 or more	21,672	0.1	93.0
No response	1,730,901	7.0	100.0
Total	**24,861,087**	**100.0**	

(Statistics South Africa, 2008a)

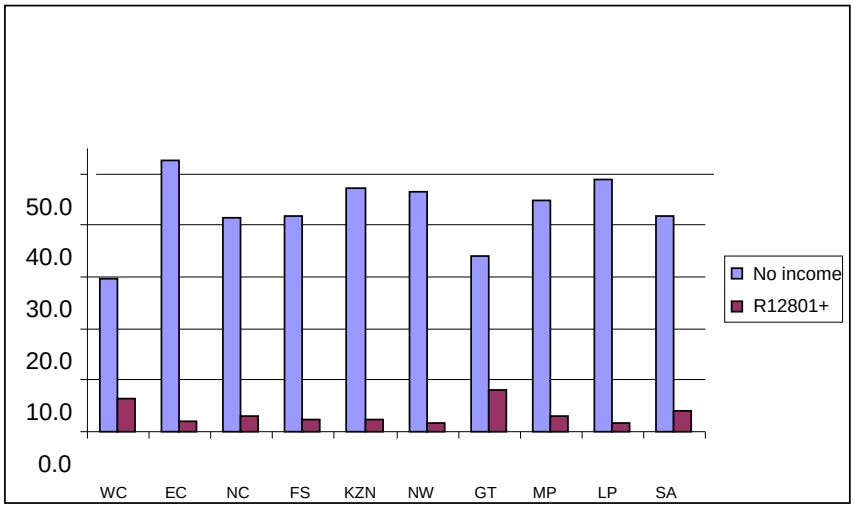


Figure 4.11: Proportion of population who earned no income and those who earned R12,800+ by province, 2007

(Statistics South Africa, 2008a)

Western Cape had the smallest proportion of people who claimed to earn no income, followed by Gauteng. These provinces have a higher proportion of the population who earned an income above R12,800 as compared to other provinces. More than 50% of the population in the Eastern Cape earned no income. The scenario is similar for Limpopo (50%), KwaZulu-Natal and North West (both estimated at 47%).

The data indicates that almost one in two persons earns some income, but this income is between R1,00 and R12,800 a month. Those who earn an income above R12,800 constitute only 3% of the household population. Income is normally a sensitive issue during the cross-sectional surveys, and as such it was a difficult measure in the Community Survey.

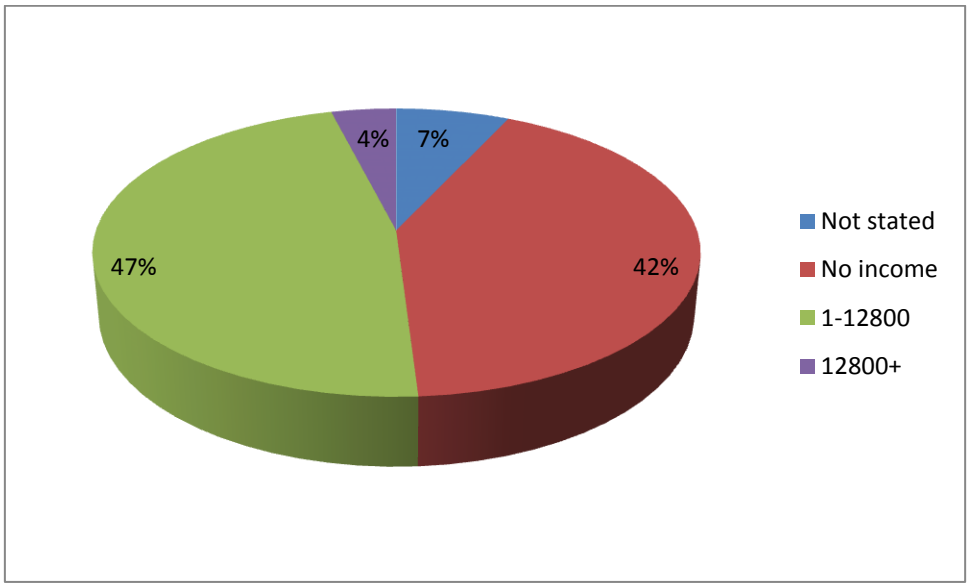


Figure 4.12: Distribution of respondents by income

(Statistics South Africa, 2008a)

Figure 4.12 indicates that 7% of the population did not state their income (Statistics South Africa, 2007). The high-income category earners (R12,800+) within the country were only 4%. The highest proportion of those with no income was among those with incomplete secondary education. It can also be observed that the proportion of those who earned little income increased from no education to those with incomplete education, after which the proportion starts to drop.

Those earning a medium income are concentrated around those who completed secondary education. The most remarkable observation is for those earning high incomes (above R12,800). This shows a phenomenon of under-reporting among those who earn more. Those who have no income are mostly among those who have incomplete secondary education. However, those who earned R12,801 and above were mostly among those who have completed post-secondary education.

In summary, there is a positive relationship between high income and level of education. Of those aged 15 to 19 years, only 24 per 1,000 (2%) earn more than R12,800 per month. Within this group, about 70 per 1,000 (7%) did not state how much they earn.

In conclusion, the younger the individual, the higher are the chances that they will be without income. This is attributable to youth unemployment, which is high; hence, a high redundant energetic population, as this analysis excluded the youth in school. It further supports the findings of the Quarterly Labour Force Survey (Statistics South Africa, 2011) with close to 3.3 million young people who were not in education, employment or training (NEET) by the end of 2011.

It was observed that 49% of women did not earn any income compared to 34% of men. In addition, more than twice the number of men (6%) compared with women (2%) earned above R12,800. Among those without any income, the proportion of women is higher than that for men. In real terms, for those who earn above R12,800, the proportion of men is twice that of women except for the 'no education' category.

It is evident that women are likely to be poorer when compared to males. A look at the relationship between marital status and income gives interesting results. The people who fall within the category of 'never married' have the highest proportion among those who earn no income. This is because people who have never been married would be mainly younger or those who are looking for a job.

In the category of the proportion of people with 'no income', those who have never married is highest, followed by the 'married traditional' (42%) and the 'living together as though married' (cohabiting partners). The most noticeable difference by gender is among those in traditional marriages. While 26% of men who are married traditionally do not earn any income, for the women, the equivalent proportion is 56%.

A question to pose is, why is it that those whose marital status is 'divorced' have a higher proportion of those earning a higher income? This is an alarming finding, as it shows that the more educated people are, the less likely it is that they will be able to stay in marriages. This may need further investigation. Among women without education, none earned a high income (above R12,800) among the divorced. This proportion begins to go up for both men and women as their level of education increases.

4.3.2 Predictors of income

Predictors of income were investigated to understand their relationship with the demographic indicators. Hoogeveen and Ozler (2005), Leibbrandt et al. (2010), Meth (2006), Simkins (2004), and Woolard and Leibbrandt (2006) have authored some recent analyses around income and poverty. These authors have provided evidence that poverty has been declining over time, while inequality has been on the increase. Analysis of income data used multinomial logistic regression. For the overall model, those without any income were selected as the reference category. For the population group, whites were taken as the reference category.

The results pertaining to the population group showed that income disparity is still evident in South Africa across the population groups. In comparison to whites, while controlling for other factors like province of enumeration, the coloured population group had the highest likelihood of being in the income category <R1,601. These were followed by Africans who were 46% more likely to be in income category of <R1,601.

Analysing the income category <R1,601, all relative risk ratio estimates are more than one, meaning that it is less likely to find whites who were in this income category. Similarly, among the middle category (R1,601 to R12,800), all three population groups are more likely to be in this category than whites. The same is true for the high-income class, i.e. those earning more than R12,800. In summary, Africans are more likely to be in the contrasting category of no income, coloureds are more likely to be in the income category of those who get some income but less than R1,601.

The likelihood for the Indian/Asian population group being in any income category increases with increasing income levels in comparison to whites. According to Van der Berg et al. (2007), real household income among the more affluent increased, causing an increase in income inequality. The driving force behind the observed increase was related to the increased inequality in household income within the race groups rather than between the race groups.

The risk ratios among those whose earnings are <R1,601 indicate the highest proportion is among those without any level of education. This is irrespective of other factors like province of birth and gender.

Observation on the risk ratio values for those earning between R1,601 and R12,800, the ratio increases with rising levels of education, implying that the higher the individual's education level, the higher the income. This is the evolution pattern for the middle-class category in the country.

This finding is in line with Simkins (2004), who found that there seems to be two social classes, those who are increasingly multiracial and who enjoy good access to well-paid, skilled jobs, and those who lack skills and employment.

For the higher-income class, it follows the same trend as those in the middle class, except that the gap between the less educated and the highly educated increases. For example, among the middle class, those with post-secondary education are 11 times more likely to be in this income category (R1,601 to R12,800) than those with primary-level education.

Those with no education are 54% less likely to be in the middle-class income category in comparison to those of primary-level education. This may be compared with previous literature on income. When the higher income category is compared, individuals with post-secondary education are over 100 times more likely to be in this income category compared with those having primary-level education.

In conclusion, education continues to be a major determinant of the average income that individuals earn. In the multivariate analysis, age was found not to be a good variable in explaining income differences. Those aged 50 to 54 years were taken as the reference group. It was found that those aged over 65 years were more likely to be in income category of those who earn <R1,601. There are social grants in South Africa for the elderly; hence, most people found in this income category earn grants. Similarly, there is a high likelihood of finding those aged 60 to 64, 35 to 39 and 45 to 49 in this category. This has been supported by Van der

Berg et al. (2007) in summary of the work done by other authors on poverty since the transition.

For the higher income category, no statistical difference is observed between the 50–54-years age group and the 55–59-years age group, while a small difference is observed between the 50–54-years age group and the 45–49-years age group. Those in age group 40–44 are more likely to have a higher income than any other age group. These may be the new generation of managers and professionals entering the labour market (Sheppard, 2009).

With level of income <R1,601, men are 46% more likely to earn some income compared to females. Similarly, at the middle level, the gap widens where males were found to be 2.8 times more likely to earn between R1,601 and R12,800. This is further widened among those with a high income, where males are almost six times more likely to have a higher income than women (Simkins, 2004).

Table 4.17: Multivariate analysis of income

	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|
	<R1,601		R1,601–R12,800		>R12,800		No stated income	
Population group								
African	1.457	0.000	0.366	0.000	0.073	0.000	0.280	0.000
Coloured	2.060	0.000	0.694	0.000	0.187	0.000	0.556	0.000
Indian/Asian	0.988	0.700	0.717	0.000	0.350	0.000	0.590	0.000
White	1.000		1.000		1.000		1.000	
Province of enumeration								
Western Cape	0.993	0.730	1.556	0.000	1.005	0.904	2.826	0.000
Eastern Cape	0.751	0.000	1.050	0.016	0.665	0.000	1.711	0.000
Free State	1.000		1.000		1.000		1.000	
Northern Cape	0.874	0.000	0.998	0.950	0.600	0.000	1.928	0.000
KwaZulu-Natal	0.803	0.000	0.899	0.000	0.640	0.000	1.532	0.000
North West	0.780	0.000	0.827	0.000	0.368	0.000	1.126	0.002
Gauteng	0.788	0.000	1.360	0.000	1.283	0.000	2.460	0.000
Mpumalanga	0.740	0.000	0.814	0.000	0.531	0.000	0.826	0.000
Limpopo	0.695	0.000	1.505	0.000	0.711	0.000	1.871	0.000

Table 4.17: Multivariate analysis of income (concluded)

	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|
	<R1,601		R1,601–R12,800		>R12,800		No stated income	
Education level								
Other	1.061	0.011	3.025	0.000	3.902	0.000	3.772	0.000
Never gone to school	1.222	0.000	0.469	0.000	0.959	0.718	0.832	0.000
Primary	1.000		1.000		1.000		1.000	
Secondary incomplete	0.668	0.000	1.498	0.000	4.742	0.000	1.410	0.000
Secondary complete	0.594	0.000	3.988	0.000	16.872	0.000	2.349	0.000
Post-secondary	0.569	0.000	11.494	0.000	108.553	0.000	5.329	0.000
Not stated	0.770	0.000	1.654	0.000	7.809	0.000	6.157	0.000
Age of the individual								
15–19	0.084	0.000	0.013	0.000	0.017	0.000	0.224	0.000
20–24	0.303	0.000	0.107	0.000	0.035	0.000	0.309	0.000
25–29	0.533	0.000	0.321	0.000	0.207	0.000	0.614	0.000
30–34	0.693	0.000	0.480	0.000	0.587	0.000	0.574	0.000
35–39	1.077	0.000	0.789	0.000	0.688	0.000	0.778	0.000
40–44	0.877	0.000	0.806	0.000	1.254	0.000	0.785	0.000
45–49	1.071	0.000	0.871	0.000	0.922	0.044	0.915	0.004
50–54	1.000		1.000		1.000		1.000	
55–59	0.907	0.000	0.738	0.000	0.948	0.222	0.771	0.000
60–64	2.267	0.000	0.594	0.000	0.436	0.000	0.823	0.000
65–69	7.819	0.000	0.896	0.008	0.438	0.000	1.401	0.000

Multinomial logistic regression:
Number of observations = 610692; LR chi2(112) = 325492.56; Prob > chi2 = 0.0000
Log likelihood = -613186.55; Pseudo R2 = 0.2097

Own analysis of Community Survey 2007
(Statistics South Africa, 2008a)

The correlation coefficient between the proportion of those who earned no income and the proportion of Africans within a province is positive at 0.7287, which is high. Similarly, the relationship between those who earned a higher income and the proportion of the population group showed that the white population group had a very high correlation of 0.9251, almost equal to one, which is the maximum value it can be.

These findings are in line with the finding of Van der Berg and Louw (2003) who concluded that the incomes of Africans, who make up the majority of the South African population's real per capita income, did not change much between the mid-1990s and 2000. The Community Survey data revealed the same in 2007 (Statistics South Africa, 2008a), which is the fact that income inequality is highest among Africans.

In conclusion, younger people are always the ones without income. This depicts that youth unemployment is high. In the multinomial logistic regression, having a dichotomous variable, there is always a reference category. For the overall model, those without any income were selected as the reference category.

4.4 Possession of household goods

In the 2007 Community Survey (Statistics South Africa, 2008a), a question was included on some household goods. The Community Survey followed the same format of questions asked in the 1996 and 2001 population and housing censuses (Statistics South Africa, 1998a; 2004; 2012a), with minor variations.

It is thus possible to have questions that can be compared over time. The question on household goods asked whether the household had any of the following items: refrigerator, radio, television, computer, landline, internet facilities, post office facilities and cellphone.

4.4.1 Changes and disparities in possession of household goods

The most common household items were radios (77%) followed by cellphones (73%). Possession of landline was at 19% and on a decreasing trend. In the 2001 census, 24% of the households had a landline while the proportion of households owning a cellphone more than doubled from 32% to 73% between 2001 and 2007. Similarly, the least common household goods available were computers (16%) and internet services (7%) as is depicted in Figure 4.13.

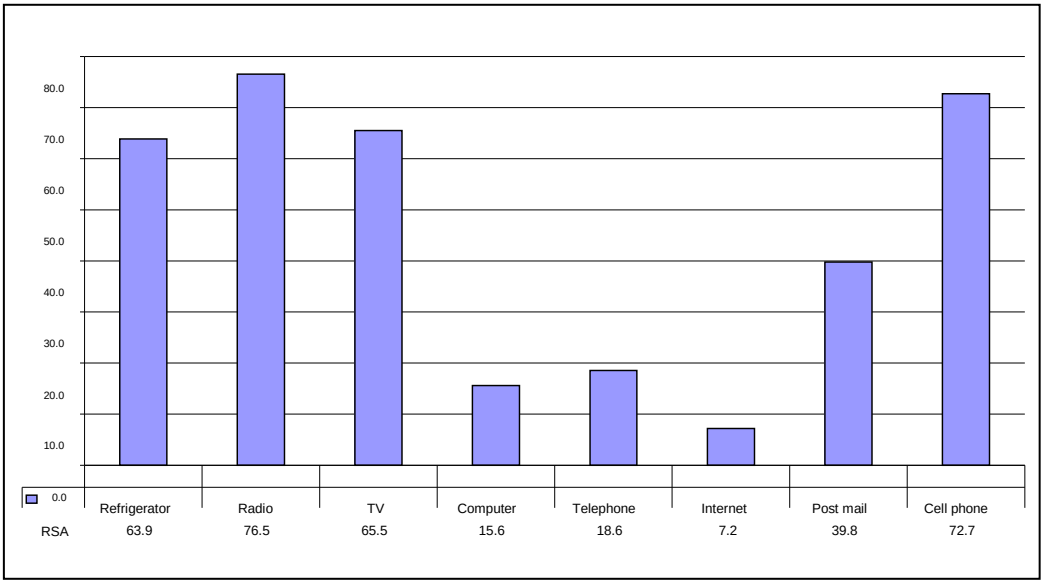


Figure 4.13: Percentage of households owning selected goods

(Statistics South Africa, 2008a)

The proportion of households owning at least one of the goods was high (93%). Data also showed that only 5% of the households possessed all the eight items mentioned. The analysis further reveals that 7% of the households did not have any of these items. For the indicator, possession of at least five goods (excluding computer and internet and combining landline and cellphone) the indicator for possession of all household goods improves from 5% to 27%.

There were wide variations of the indicators by province, as shown in Table 4.18. Western Cape had the highest proportion of households in relation to possession of one of the goods, possession of five goods and possession of all eight household goods. Households in Western Cape measure very well on possession of household goods. It was also observed that Western Cape had the lowest proportion of households without any of the items. This indicates that the provinces with better economic opportunities have higher prospects of households being able to acquire household goods.

Eastern Cape had the lowest proportion of households with at least one item (86%). For those who had all the items, Western Cape had the highest proportion (11%), followed by Gauteng (7%). Eastern Cape had the lowest proportion (2%) of

households possessing all items. Households in Eastern Cape had the highest proportion of households without any items at 14%, followed by Northern Cape (8%). These findings indicate the inability of the provinces with higher levels of poverty (such as Eastern Cape) to have households that can acquire the basic household goods.

Households headed by females were worse off, compared with those headed by males. Looking at households with at least one item, almost no differences existed between households headed by males (94%) and households headed by females (93%). Female-headed households are found to struggle more to acquire household goods when compared to male-headed households.

However, as far as the proportion of households with all the items is concerned, households headed by males were three times more likely to have all the items compared to those headed by females. The female-headed households are also found to have higher prospects of being poorer as compared to the male-headed households.

On the indicator that excludes the possession of computer and internet, the difference between households headed by males (31%) and households headed by females (22%) was 8%. The disparities between male and female-headed households indicate higher prospects for male-headed households to have better living standards as compared to female-headed households.

Table 4.18: Proportion of households by selected indicators, by province

Province	Has at least one	Has all 8 household goods	Does not have any	Has 5 household goods
	Indicator I	Indicator II	Indicator III	Indicator IV
Western Cape	97.1	11.2	2.9	42.4
Eastern Cape	85.9	1.7	14.1	10.2
Northern Cape	91.7	3.6	8.3	30.5
Free State	95.4	2.4	4.6	33.5
KwaZulu-Natal	92.3	3.8	7.7	25.2
North West	92.1	1.6	8.0	18.2
Gauteng	96.5	7.4	3.5	37.8
Mpumalanga	94.2	1.8	5.8	21.5
Limpopo	92.2	0.9	7.8	14.7
Total	**93.37**	**4.58**	**6.63**	**27.2**

(Statistics South Africa, 2008a)

Among whites, possession of at least one of the items was universal. Similarly, among Indians/Asians, less than 1% did not have at least one of the items. For the Africans, about one in ten of the households did not have any items. Less than 1% of the African households had all eight items. The proportion changed to 4% among the coloured population group.

For Indians/Asians, slightly over one in ten had all eight items mentioned while for whites, slightly more than one in four of the households had all the items. The younger generation may be interested in particular types of goods/commodities compared with the elderly. Therefore, an analysis by age of the household head was performed; two groups were constituted, the first group had three categories, namely households headed by children, adults and the elderly. In addition, the group of adults was divided into youth (18 to 30 years), and adults not youth or elderly (31 to 64 years).

The results show that households headed by children were the most disadvantaged. Of households headed by children, 85% had at least one item. It was also observed that less than 1% of households headed by children had all eight items. Households headed by adults, as expected, were the most advantaged.

For households headed by those aged 31 to 64 years, 6% had all eight goods as compared to households headed by the elderly (over 65 years) at 3%. Households headed by youth (18 to 30 years) did not measure well on possession of all items as only 2% had all the items.

Household size is the number of persons usually residing in the household (de jure) and who share household expenses ('common' kitchen). Ideally, the welfare of a household is also drawn from a larger network of relationships, the extended family. The 2007 Community Survey data (Statistics South Africa, 2008) limits analysis of the network relationships. Nevertheless, the available data was on the members of the household practically involved in the day-to-day welfare of the household.

The size of a household may affect what a household may possess. Households with few people have low proportions of possession of at least one good; for example, the proportion of households made up of single individuals, which had at least one household good was 87%. This increased to 93% among households with two individuals, and reached a maximum of 96% among households with four or more people.

When it comes to possession of all eight items, the results were different across different household sizes. Households with two to five individuals had high proportions of all the items. Possession of five items in relation to age of household head follows the same trend as possession of all the eight items, except with higher values.

Considering households with at least one item was almost universal in comparison to those with no education, with only 86% having at least one item. For possession

of all items, households headed by those with no education, only 1 per 1,000 (>1%) had all eight items. This increased to 2 per 1,000 (>1%) for those with primary education and to 18 per 1,000 (2%) among households headed by individuals having incomplete secondary education.

When measuring possession of all items, households headed by those with secondary education stood at 86 per 1,000, and then a quantum jump to 219 per 1,000 (22%) among those with post-secondary education. The corresponding figure for possession of five items estimated at 92 per 1,000 (9%) among households headed by individuals with no education, estimated at 147 per 1,000 (15%) for primary education, and almost doubled for those with incomplete secondary at 247 per 1,000 (25%).

This further increased to 434 per 1,000 (43%) for those with complete secondary education and reached a maximum of 625 per 1,000 (63%) among those with post-secondary education. Since most decisions are made by the household head, what to have and not to have can be determined by the income of the decision-maker. This analysis categorised income into five groups. Although some variations occur within possession of at least one household good, this indicator did not seem to follow any trend. Hence, this was not a good measure for household welfare.

For possession of all items, it is surprising that households headed by people with no income, 1% had all the items, while under 1% of those had income less than R1,601. For those whose income was above R12,800, more than one in three had all the eight items. It was found that under 1% of the households whose household head earned more than R12,800 did not have any of these household goods (Indicator III). It was also found that three in four households headed by those who earned above R12,800 had all five items.

4.4.2 Predictors of possession of household goods

Predictive analysis of household goods used four different indicators to distinguish across acquisition of goods across the households:

[1] Proportion of households with at least one of the eight goods;

[2] Proportion of households with all five goods (based on first, the proportion of households with computers and those with internet may be very small, and second, possession of internet is far from being universal);

[3] Proportion of households with all eight goods; and

[4] Proportion of households with none of the eight goods.

The analysis using the above four indicators was done by the selected characteristics, namely province of enumeration, household size and some characteristics of the household head, namely gender, population group of the head, educational attainment, age, and income. A binary logistic regression was run for the factors expected to explain income for possession of all items and possession of five items.

Eastern Cape was taken as the reference province and variability for possession of five items shows that when other factors are considered, households in Free State are approximately six times more likely to have all five household goods compared with those in Eastern Cape, followed by households in Gauteng (4.3 times) and households in Western Cape (3.2 times).

When variability for possession of all items is considered, households in Free State were 3.6 times more likely to have all eight household goods compared with households in Eastern Cape. These were followed by households in Gauteng, which were 3.3 times more likely, Mpumalanga (3.0 times) and Western Cape (2.6 times) compared with those households in Eastern Cape. These findings are slightly different from those of the bivariate analysis, which put Western Cape highest with regard to possession of at least one item, five items and all items as supported by the research by Bhorat et al. (2007).

Households headed by males were less likely to have either all five goods or all eight goods compared to those headed by females. This is a contradicting finding to other comparisons between female-headed and male-headed households (Woolard et al., 2006).

Analysis across the population groups with regard to indicator IV showed that Indians/Asians are 35% more likely to have all five goods compared to whites, if other factors like province of enumeration, sex, level of education and age are controlled for. When analysis is conducted for all eight household goods, including computer, internet, landline and cellphones taken separately, whites are more likely to have all the goods.

Africans are less likely to have all eight household goods, compared with other population groups, followed by coloureds. The logistic regression results on possession of five items and eight items indicate that, the higher the education levels of the household head, the more likely the household is to have all the goods (Ozler, 2007).

The comparison between possession of five and eight items between the households headed by those with no education and those with primary and secondary incomplete for the two indicators, yielded similar results. When analysis was done with secondary completion and post-secondary school attainment, great variation was noticed, as indicated by the odds ratio.

Age of the household head showed that when one controls for other factors in the model, the older the household head, the more likely the household is to have all eight household goods. This is true whether considering possession of five items or possession of eight items. Income showed no difference between those with no income and those who earn less than R1,601, on possession of five items, but a significant difference in income level was noticed on possession of eight items.

As expected, those with higher income had a higher likelihood of having all household goods compared to those households whose heads were without income.

A comparison between possession of five items and possession of eight items shows similar trends, except that the odds ratios do not follow the same trend across the different categories, as indicated in Table 4.19. Findings of the work authored by Bhorat et al. (2007), Landman (2003), Meth (2006) and Woolard et al. (2006) have shown continuous disparities and changes in state of ownership of assets across households across the country since the dawn of democracy.

Bhorat et al. (2007) further argue that in the post-2000 period, growth in access to assets started from a low base and government's service delivery drive started from a relatively rapid initial status.

Table 4.19: Logistics regression results for indicator

	Indicator IV		**Indicator II**	
	Odds ratio	**P>|z|**	**Odds ratio**	**P>|z|**
Province				
Western Cape	3.23007	0.000	2.63747	0.000
Eastern Cape	1.00000		1.00000	
Northern Cape	2.86361	0.000	1.57048	0.000
Free State	5.89016	0.000	3.63187	0.000
KwaZulu-Natal	2.60416	0.000	1.69317	0.000
North West	2.48879	0.000	2.16793	0.000
Gauteng	4.36673	0.000	3.33754	0.000
Mpumalanga	3.11602	0.000	3.04273	0.000
Limpopo	2.22150	0.000	2.28745	0.000
Sex				
Male	0.90027	0.000	0.89852	0.000
Female	1.00000			

Table 4.19: Logistics regression results for indicator (concluded)

	Indicator IV		Indicator II	
	Odds ratio	**P>|z|**	**Odds ratio**	**P>|z|**
Race				
African	0.24363	0.000	0.05321	0.000
Coloured	0.46080	0.000	0.07458	0.000
Indian/Asian	1.35180	0.000	0.52537	**0.016**
White	1.00000			
Education level				
No education	1.00000			
Primary	1.78259	0.000	1.79627	**0.000**
Secondary incomplete	3.14532	0.000	3.48413	**0.000**
Secondary complete	5.09942	0.000	7.74336	**0.000**
Post-secondary	8.11945	0.000	18.93245	**0.000**
Not stated	2.57118	0.000	2.16270	**0.000**
Hh size	1.19068	0.000	1.33033	**0.000**
Age				
<18 years	0.44072	0.000	0.60174	**0.000**
18–30 years	0.30092	0.000	0.70728	**0.000**
31–64 years	0.58107	0.000	0.95561	**0.055**
65+ years	1.00000			
Income				
No income	1.00000			
<R1,601	1.01846	0.275	1.47517	**0.000**
R1,601–R12,800	2.15022	0.000	3.36352	**0.000**
>R12,800	3.42643	0.000	5.36996	**0.000**
Not stated	2.02142	0.000	1.97862	**0.000**

Own analysis of Community Survey 2007

(Statistics South Africa, 2008a)

SECTION B: SERVICE DELIVERY MEASURES

4.5 Access to water

In this section, the research focused on the patterns of access to quality water services delivery and evaluated those using descriptive measures with special emphasis on Millennium Development Goal number seven, target two of reducing, by half, the proportion of the population without sustainable access to safe water.

4.5.1 Changes and differential in the quality of water

Almost 89% of the households that are headed by males had good to very good water service delivery compared to those headed by females (83%) in the same category. While this may not look significant, it shows the gender disparity.

These differences are also true for the population groups where the proportion of households headed by Africans is the lowest (84%) compared to 96%, 96% and 99% for the white, coloured and Indian/Asian population groups, respectively.

Cross-tabulations between water service quality against type of dwelling and type of toilet facility showed significant chi-squared test values with $p<0.000$. There are four types of dwellings, namely formal, traditional, informal and other. The results indicate that water quality service delivery is worst for those living in traditional homesteads with a score of only 48% compared to the formal and informal dwelling categories each scoring 92% and 93%, respectively.

Flush toilets with sewerage and septic tank had the highest scores of 99% and 90%, respectively and the lowest were those with dry toilets and pit latrines at 74% and 76%, respectively. As expected, these would have been replaced with flush toilets if the quality of water services delivery was good.

4.5.2 Predictors of access to water

Bhorat et al. (2007) made an observation of relatively faster service delivery in the first six years (1994 to 1999) into democracy. This is surprising as they looked into the government's shift into more expansionary fiscal policy and increased spending in service delivery in the post-2000 era.

Predictive analysis for access to water showed varying levels of significance. There were significant coefficients of all predictor variables used in this study for the predicted variable, quality of water service where the base category was very good according to analysis. The results of the multinomial logistic regression showed that for the category 'good water service access', the predictor variables showed significant coefficients.

This implies that household size, income category, marital status, type of toilet, type of dwelling, gender of household head, population group, and province (thus excepting level of education) showed significance towards measuring the quality of water service delivery in South Africa.

Considering the next category where quality of water service delivery is 'fair', all predictor variables mentioned above (including level of education of the household head) had significant coefficients. This was also found to be true for the category 'poor quality of water service delivery' because when the quality of water service delivery is good, some indicators may not be significant, hence their significance only becomes evident when conditions are poorer, such that smaller differences in delivery may then appear significant.

When predicted on quality of water service delivery, the balance of 32% are those receiving either unsatisfactory or no water services. The results pertaining to the effects of income on service delivery indicate that the level of income has a significant impact on water service delivery (Woolard et al., 2006). That is, the higher the household income, the less likely it is that water service delivery will be poor.

Table 4.20: Cross-tabulation of water service quality against income, sex and population group

Water service quality		Income category				Sex		Population group			
		Other	Low	Medium	High	Male	Female	Black African	Coloured	Indian/Asian	White
Very good	Number	11,038	130,546	22,616	1,437	104,725	60,912	114,389	21,430	5,304	24,514
	Percent	83.13	62.9	93.34	92.47	71.24	61.14	59.53	92.04	97.82	95.11
Good	Number	1,283	45,572	658	36	25,617	21,932	46,371	976	71	131
	Percent	9.66	21.96	2.72	2.32	17.43	22.02	24.13	4.19	1.31	0.51
Fair	Number	848	30,115	928	80	15,776	16,195	30,062	773	39	1,097
	Percent	6.39	14.51	3.83	5.15	10.73	16.26	15.65	3.32	0.72	4.26
Poor	Number	109	1,324	27	1	881	580	1,316	104	8	33
	Percent	0.82	0.64	0.11	0.06	0.6	0.58	0.68	0.45	0.15	0.13

This analysis presented nine significant indicators that are related to the delivery of water services in South Africa. These are: household size, income category, marital status, type of toilet facility, type of dwelling, level of education of the household head, gender, population group and province. The variation of probabilities across type of toilet shows that it is more likely to find poor water service delivery for poor toilet facilities. It can be concluded that poor water services are associated with poor toilet facilities in South Africa. Analysis by sex of households and its disparities plays a vital role in quality of service delivery (Ozler, 2007).

Male-headed households reported to have good quality of water services compared to their female-headed counterparts, scoring 70% and 62%, respectively. The worse the services, the higher the number of female household heads, as noted for predicted fair water delivery services and predicted poor water delivery service. Analysis across the population groups also shows disparities across the population as far as access to water is concerned. There are disparities in access and quality of water delivery services among Africans, coloureds, Indians/Asians and whites.

The probability that an African-headed household will have good quality of water service delivery is 61%, ranking least when compared with coloured, Indian/Asian and white-headed households at 82%, 91% and 93%, respectively. Likewise, the probability that an African-headed household will have poor quality of water service delivery is 15%, ranking highest when compared with coloured, Indian/Asian and white-headed households at 6%, 2% and 2%, respectively.

The variation of probabilities across the independent variable of income categories indicates that the probability of levels of poor water service delivery reduces with an increase in annual household income. That is, the more the household income of South Africans, the less likely it is that water service delivery will be poor.

4.6 Access to electricity

In households, electricity is used for a number of activities, but the major purpose is for lighting.

4.6.1 Changes and disparities in access to electricity

The 2007 figures indicate that more than 80% of the households in South Africa use electricity as the main source of energy for lighting. The proportion of households that use electricity for cooking stood at 67%, and for heating at 59%. Over half the households (57%) in South Africa use electricity for lighting, cooking and heating, which is an improvement on the 43% that were using electricity for all three activities in 1996 (Ozler, 2007).

Taking 1996 as the base period and only considering the households with specific use of electricity, households with access to electricity increased by 93% for those using electricity for lighting. Those using electricity for cooking increased by 95%, while those using electricity for all the three increased by 83%.

The absolute figures are very important for power-generating companies. Since 1996, the proportion of households using electricity has been increasing steadily.

The increase has been in all three activities where electricity is used, namely heating, cooking and lighting. Overall, the proportion of the population using electricity as a form of energy for lighting increased by 23%, for cooking, usage increased by 19% while the proportion of households using electricity for heating increased by 14% between 1996 and 2007. Over the term, the proportion of households using electricity for lighting, cooking and heating increased by 14% (Ozler, 2007).

In 1996, the discrepancy between the proportions of households using electricity for lighting was wide in the different provinces. Western Cape had the highest proportion of households using electricity for lighting at 8%, followed by Gauteng at 79% and Northern Cape at 69%.

Just looking at the top three, the difference between these provinces was large. Eastern Cape (31%) and Limpopo (36%) had only one in three households using electricity for lighting. The gap between the province with a higher proportion and that with the lowest proportion was 64%.

Eleven years later in 2007, Western Cape still had the highest proportion of households using electricity for lighting, but the gap had narrowed by about half (33%) between said province and Eastern Cape, which still had the least proportion of households using electricity for lighting.

Although Eastern Cape still recorded the lowest proportion of households using electricity, the proportion more than doubled between 1996 (31%) and 2007 (66%). Overall, Limpopo had the highest increase in the proportion of households using electricity for lighting at 45% (Ozler, 2007).

The proportion of households using electricity for cooking follows a similar pattern to those using electricity for lighting. Also observed is that in all provinces, the proportion of households using electricity for cooking was lower than the proportion of households using electricity for lighting. Some households may use other forms of energy (like solar energy) for lighting, but would use electricity from the grid for cooking.

Western Cape had the highest proportion of households using electricity for cooking at 76.5% in 1996, while Eastern Cape had the least (23%) (Statistics South Africa, 2011). Free State had the highest increment in the proportion of those using electricity for cooking (34%), followed by North West (33%) and Northern Cape (26%). Gauteng still had the lowest increase in the proportion of households using electricity for cooking (9%).

The third major use of electricity is heating. The proportion of households using electricity for heating was below that of those using electricity for cooking and lighting. In the government plan of subsidising electricity, the first priority is on lighting. The proportion of households using electricity for heating was almost the same in Western Cape (72%) and Gauteng (70%) in 1996. In all other provinces, the proportion of households using electricity for heating was below 50%; Statistics South Africa (2002) made the same observation.

In 2001, only Northern Cape had reached above 50% with the proportion of household using electricity for heating at 56%. In 2007, three provinces recorded the proportion of households using electricity for heating as being below 50%, namely Eastern Cape (32%), Limpopo (37%) and Mpumalanga (46%). The rest were above 50%. The province that registered the highest increment in households using electricity for heating was North West (27%).

Despite the fact that it is still among the provinces with a low proportion of households using electricity for lighting, Mpumalanga had the second highest increase in the proportion of households using electricity for heating. Gauteng, as in the previous two forms of energy use (lighting and cooking), had the lowest increase in the proportion of households using electricity for heating.

The fourth analysis of electricity used a combination of households using electricity for all the three major uses of electricity within a household. The proportion of households using electricity for the three activities follows the same pattern for households using electricity for heating. Western Cape and Gauteng continued to perform better than other provinces.

In addition, these two provinces had the minimum change in the proportion of households using electricity for all three. The provinces that had a low proportion of those using electricity had the highest increment. The highest increase was observed in North West (26%), followed by Northern Cape (19%), Limpopo (17%) and Free State (16%). Western Cape (8%) and Gauteng (7%) recorded the lowest increase.

Electricity is not only used for lighting and heating purposes, and taking electricity to rural areas increases the safe storage of food stuffs, and allows the mechanisation of many farming operations in areas facing labour shortages, which in turn becomes beneficial to the entire country. A comparison between the proportion of households that used electricity for lighting, cooking and heating and a combination of the three was conducted in the analysis.

In 1996, 77% of the households in urban areas were using electricity for lighting compared with 28% in rural areas, a difference of 49%. In 2007, this difference had decreased to 21%. Similarly, the proportion of households that used electricity for lighting increased by 10.4% in urban areas and by 38% in rural areas between 1996 and 2007. This shows that more households that were once disadvantaged have access to electricity for lighting. Comparing differences in electricity use for cooking and heating shows slight changes between 1996 and 2007.

The difference between the proportion of urban and rural households that used electricity for cooking and heating in 1996 was 53% and 51.6%, respectively. This dropped to 44% and 43% in 2007 for cooking and heating, respectively. The increase in use of electricity for cooking changed by 13.4% and 22.3% between urban and rural areas between 1996 and 2007, while for heating, the proportion of households using electricity increased by 8.5% in urban areas and by 17% in rural areas between 1996 and 2007.

Analysis of access to electricity use by sex of the head of the household indicates that female-headed households are disadvantaged when compared with those households headed by their male counterparts. With regard to lighting, a small gap

exists between households headed by males (81%) and those headed by females (78%).

However, the differences become wider when one considers use of electricity for cooking, heating and also using all three (lighting, cooking and heating) with differences between 10% and 12%. Nevertheless, one should consider that in 1996, the gap between female and male-headed households was wider.

The proportion of households using electricity for lighting was 14% and 16% for cooking, heating, and all three.

The increase in the proportion of households using electricity has been more prevalent in female-headed households than in those that are male-headed. Between 1996 and 2007, the proportion of female-headed households using electricity for lighting increased by 29% (from 49% to the current level of 78%), whereas those headed by males increased by 19% over the same period.

In all types of electrical use, the percentages for female-headed households increased more than those of male-headed households. The gap between male and female-headed households using electricity has been decreasing. The disparities are even higher across the informal settlements when compared with formal settlements, which can be attributable to the increasing numbers of shacks in which many people use paraffin and candles for lighting and heating.

Analysis pertaining to the household size showed peculiar findings. The proportion of households using electricity (irrespective of what they used it for) first increases with increasing household size, from households of one person to a maximum for households with four persons. Thereafter it begins to decline at the rate at which they rose. Also observed is that the proportion of two-person households using electricity and that of five-person households are nearly the same. The above observations underscore the fact that use of electricity for lighting comes first in terms of affordability.

Provision of electricity for lighting has improved in the different types of dwelling units and settlements. As expected, households living in formal dwellings have the highest proportion of those using electricity as a form of energy. Less than 10% of formal households do not have electricity at least for lighting. However, a large proportion of the population continues to live in other forms of dwelling units, especially informal and traditional. Less than half of the households in traditional dwelling units and 51% of households in informal dwellings are using electricity for lighting.

The challenges with these non-formal dwellings, which account for 30% of all households in South Africa, are that most of them are expected to be eliminated.

The question arising from the analysis remains the quality of service delivery in the changes observed in households and human settlements. There has been great improvement in the provision of electricity for lighting without exception, including the traditional and informal dwelling units.

The highest increment in electricity use for lighting, cooking and heating was observed among those dwelling units classified as 'other'. The services in dwellings may depend on form of ownership. Usually, households for rent must meet a minimum standard before tenants occupy them. Second, when people are buying houses, they usually buy those that are complete in relation to basic services.

4.6.2 Predictors of access to electricity

The services in a dwelling unit may depend on form of ownership. Usually, households for rent must meet a minimum standard before tenants take up residence. Second, when people are buying houses, they usually buy those that are complete. Households staying in owned dwelling units that are partially paid for recorded the highest proportion of those using electricity, followed by those in rented dwelling units (Bhorat et al., 2007). Surprisingly, the proportion of households using electricity within dwellings that are owned and fully paid for, stands at only 80%. The lowest proportion of households using electricity is among those occupied rent-free.

4.7 Refuse removal

One of the main activities undertaken by local municipalities is refuse collection.

4.7.1 Changes and disparities in access to refuse removal

Based on the analysis of the Community Survey (Statistics South Africa, 2007), only six in ten of households have their refuse removed by local authorities, three in ten have their own disposal, while one in ten do not have any refuse disposal. Between 1996 and 2007, there has been little progress in the proportion of households of which the refuse is collected by municipal/local authorities.

The number of households from which local municipalities/private companies collect refuse has increased from 4,839,821 households in 1996 to 7,726,292 households in 2007, an increase of 2,886,471 households. This increase implies that the municipalities/private companies must continue to expand their services if they are to cope with the increasing number of households. Provincial disparities show that Limpopo had the lowest proportion of households where refuse was collected by local authorities/private companies (19%). Western Cape recorded the highest proportion (91%), followed by Gauteng (86%).

The trends in refuse collection show that North West had the highest increase in the proportion of households from which the local authorities/private companies collected refuse (from 36% in 1996 to 56% in 2007, an increase of 20%). This was followed by Free State, which had an increase of 11% (from 65% in 1996 to 76% in 2007).

Gauteng recorded the lowest increase (1%). It should, however, be noted that, as a net receiver, Gauteng had a much higher proportion of inter-provincial migrants than any other province. This rapid population increase has had an effect on the ability of local authorities to cope with service delivery demands.

The same trend has been observed over the period 2007 and 2011, as depicted in the census results (Statistics South Africa, 2012a).

Limpopo and Eastern Cape had the highest proportion of households with no refuse disposal (both at 14%). Although both provinces had the same proportion, the rate of decrease has been slower in Limpopo than in Eastern Cape. Western Cape, Gauteng and Northern Cape had the lowest proportion of households with no refuse disposal in 1996, 2001, 2007 and 2011.

The proportion of households with own refuse disposal increased in a number of provinces, namely Eastern Cape (7%), Mpumalanga (5%) Northern Cape (4%), Gauteng (3%) and Limpopo (1%). Northern Cape was the only province with a significant decrease in the proportion of households with own refuse disposal.

There has been little change in the proportion of households in urban areas whose refuse is collected by local authorities/private companies. The access to service has increased from 86% in 1996 to 88% in 2001, and to 89% in 2007.

The proportion of households whose refuse is collected by local authorities/private companies in rural areas has remained low (5% in 1996, 7% in 2001 and 10% in 2007). The majority of the households in rural areas have continued to use their own refuse dump.

The profile by the geographical type shows that the proportion of households whose refuse is collected by the local authority varies greatly by geographical type; from as low as 7% in the tribal areas, to as high as 93% in urban areas with formal housing. The tribal areas have the highest proportion of households that use their own refuse dump (77%), followed by rural formal areas (62%).

In addition, tribal areas and rural formal settlements have the highest proportion of households with no refuse disposal. The proportion of male-headed households whose refuse is collected by local authorities/private companies is higher than the proportion of households headed by females (67% and 55%, respectively).

There are also more female-headed households that use their own refuse dump (37%) than male-headed households (27%). Similarly, the proportion of households with no refuse disposal is slightly higher for female-headed households (8%) compared with the 6% of male-headed households.

The proportion of households whose refuse is collected by local authorities/private companies decreases as the size of the household increases (from 69% within households having two persons, to a low of 42% in households having eight or more persons and which are more likely to be poor).

As the proportion of those households whose refuse is collected by local authorities/companies decreases, the proportion of households that use their own refuse dump increases (from 25% in households of two persons to 47% in households with eight persons). The proportion of households with no disposal facilities also increases as the average household size increases.

Households living in dwelling units that are owned, but not fully paid, have the highest proportion of households whose refuse is collected by local authorities/private companies (92%). This high percentage may be attributable to individuals buying houses in housing estates that had been well planned; the local authorities know that they have an obligation to remove refuse.

In addition, 83% of the households living in rented dwelling units have their refuse collected by local authorities/private companies. Most of the households living in rent-free dwellings either use their own refuse dump (42%) or have no disposal facility (14%). This may not be a good indicator, as most of those in the rent-free dwellings are the poor, and if they have poor hygiene, they may not be able to afford paying for medical services.

Table 4.21: Refuse disposal by ownership of dwelling, 2007

	Number	Local authority	No disposal	Own disposal
Owned and fully paid	6,209,204	53.2	7.6	39.2
Owned but not yet paid	1,493,827	92.2	1.4	6.4
Rented	2,356,145	83.2	2.5	14.3
Occupied rent-free	2,338,804	44.1	13.7	42.2
Other	102,629	53.4	15.5	31.1

(Statistics South Africa, 2008a)

The results show that the proportion of households whose refuse was collected by local authorities by type of dwelling unit did not change much between 1996 and 2007.

4.7.2 Predictors of access to refuse removal

Dwelling units were classified in four categories, namely formal, informal, traditional and other. Households that lived in other types of dwelling units recorded a significant increase, from 44% in 1996 to 67% in 2007. It was also observed that the proportion of households without disposal facilities among those living in other types of dwellings reduced by 25% and within the traditional dwelling units, it reduced by 10% between 1996 and 2007.

Improvements in service delivery indicate that more remains to be achieved. Despite 90% households having access to water, 62% rated the quality of water as good, which is a decrease from the 76% recorded in 2005. The proportion of

households still using the bucket system declined from 13% in 2002 to 6%, close to half by 2012. The use is still high in Eastern Cape (estimated at 17%).

The proportion of households with access to refuse removal by municipality increased between 2002 and 2010 (58% to 62%), but declined to 61% in 2011. Is this a moving target or does it relate to choices people are making by settling in areas where services are not yet in place?

4.8 Principal component analysis

Data on housing and household services and availability of household goods from the 2007 Community Survey was used to apply PCA to describe the socioeconomic status of households in South Africa. Since all the housing and household services variables are categorical, dummy binary variables were created (see Annexure 2), resulting in 39 variables that were all included in the PCA (see Table 4.22).

The results indicate that most households had piped water and lived in modern housing. Electricity and gas were the most commonly used energy for cooking, heating and lighting; and most households had flush or chemical toilets and had their refuse removed weekly. The number of rooms was mostly 1–2 or 3–4, with most houses owned by the households. The most common goods owned by households were radio, cellphone, television and refrigerator.

This analysis indicates that service delivery indicators were not the determinants or drivers of poverty and inequality, but their inequality is a sign of outcomes from poverty.

Table 4.22: Descriptive statistics of housing and household services variables

Variables	Mean	Std. deviation	Variables	Mean	Std. deviation
Access to water			**Number of rooms**		
Piped water in dwelling	.47	.499	1–2 rooms	.32	.468
Piped water in yard	.22	.416	3–4 rooms	.34	.474
Piped water public places	.19	.394	56 rooms	.21	.409
Other sources of water	.11	.317	7+ rooms	.11	.308
Type of main dwelling			**Tenure status**		
Modern housing	.73	.442	House owned	.62	.486
Traditional housing	.12	.321	House rented	.19	.391
Informal housing	.15	.353	House rent-free	.19	.390
Other types of housing	.00	.055	Other housing	.01	.091
Energy use for cooking			**Household goods**		
Electricity & gas for cooking	.68	.465	Has refrigerator	.64	.480
Paraffin for cooking	.15	.355	Has radio	.77	.424
Other energy for cooking	.17	.374	Has television	.66	.475
			Has computer	.16	.363
Energy use for heating			Has landline telephone	.19	.389
Electricity & gas for heating	.60	.490	Has internet	.07	.259
Paraffin for heating	.13	.337	Has postal facilities	.40	.489
Other energy for heating	.27	.445	Has cellphone	.73	.445
Energy use for lighting					
Electricity & gas for lighting	.80	.398			
Paraffin for lighting	.05	.223			
Other energy for lighting	.14	.352			
Toilet facilities					
Flush or chemical toilet	.58	.493			
Pit or bucket toilet	.34	.472			
No toilet	.08	.275			
Refuse disposal					
Refuse removed weekly	.60	.490			
Refuse removed less often	.02	.129			
Other refuse removal	.38	.486			

Table 4.23: Matrix of analysis for poverty and inequality – Life circumstances indicators

	Education	Employment	Income	Household goods
INTRODUCTION	The proportion of children not attending school is at 4%. Why are these children not attending school when it is free and compulsory? Children with both parents alive have the highest proportion of those attending school at 95%. Children staying in tribal areas had the highest likelihood of attending school, followed by those in urban formal, then urban informal and lastly the rural formal. Lack of money remains the primary reason for not being at school.	Less than 2% of the females with no education earned more than R1,601. For the males, one in ten earned between R1,601 to R3,200 with under 1% of the males with no schooling earning more than R3,200 and above. There are more informally employed people dwelling under traditional settlements at 59% compared with only 24% and 38% under formal and informal settlements respectively. Generally, the probability of a person belonging to the informal employment status is 11%.	Income distribution within South Africa is skewed with the majority of the population earning no income or very little income. Those with higher educational levels make up the biggest proportion of those who earn R12,801 and above. Within the economically active population and working population, two in five do not have any income. The risk ratios among those whose earning is <R1,601 indicate the highest proportion is among those without any level of education. Those with post-secondary education are 11 times more likely to be in this income category (R1,601 to R12,800) than those of primary level.	Of the population, 5% had all eight items. Of the households, 7% do not have any of these items. Less than 1% of households headed by children had all the eight items. Households headed by those with no education, only 1/1 000 (0.01%) had all eight items. The higher the education levels of the household head, the more likely the household to have all the goods.

Table 4.23: Matrix of analysis for poverty and inequality – Life circumstances indicators (continued)

	Education	Employment	Income	Household goods
POPULATION GROUP	The proportion of the coloured population group attending school is below that of other population groups. The coloured population group had the lowest likelihood of attending school compared to other population groups. The white population were three times more likely to attend school compared with coloureds, while Africans were two times more likely to attend school. For those who completed primary schooling, Africans have the highest likelihood, followed by coloureds given that they do not have some secondary education attainment. Indians/Asians have the highest likelihood of being among those who completed Grade 12/Standard 10 or higher educational level.	Most Africans and coloureds fall in the same educational category with high proportions of some primary school attainment. Among the African group, more females (14%) had education compared to males (12%). The white population group is still the most advantaged in relation to academic achievement. More than 50% of whites (one in every two) had a higher qualification. Among whites, the no schooling category and some primary are almost non-existent. Africans dominate the informal sector at 33% compared to 22%, 13% and 8% for coloureds, Indians/Asians and whites, respectively.	A province whose African population is 80% or more, the proportion of the population without income is more than 40% among those aged 15 to 65 years both male and female. The exception is Northern Cape. In Northern Cape, the proportion of coloureds is high at 54%, implying that adding coloureds and African, it will still be above 80%. Analysis by population group shows a scenario where income disparity is still evident in South Africa across the population groups. It is less likely to find whites who were in the no income category. Among the middle class (R1,601 to R12,800), all three population groups are less likely to be in this category when compared with whites Africans and coloureds are likely to be in the category of those who earn some income but less than R1,601.	Among whites, possession of at least one of the items was universal. For Africans, about one in ten households did not have any items (indicator III). Less than 1% of Africans had all eight items For the possession of all five household goods, Indians/Asians are 35% more likely to have all five goods compared with whites. Africans are less likely to have household goods compared with other population groups, followed by coloureds.

Table 4.23: Matrix of analysis for poverty and inequality – Life circumstances indicators (continued)

	Education	Employment	Income	Household goods
SEX	No major differences observed in levels between males and females or between boys and girls. The predictive model excluded gender, as there was no sufficient evidence that gender differences existed in school attendance. Females were more likely to have no schooling and have completed primary level compared to males among those aged 25 to 64 years.	Female household heads are almost twice as likely (41%) as their male counterparts (23%) to fall within the informal employment status. There are 59% of females in formal employment, as opposed to their male counterparts, who constitute 77% in formal employment status.	The highest proportion of those with no income was among those with incomplete secondary education and was highest among women. Of the women, 49% did not earn any income, compared with 34% of the men. Males earn more income than women in every income category, and with level of income <R1,601, men are 46% more likely to earn some income compared to women. In the middle level, the gap widens where males were found to be nearly three times more likely to earn between R1,601–R12,800. Males are almost six times more likely to have a higher income than women.	Households headed by males were three times more likely to have all the household items. The difference in acquisition of household goods between households headed by males (31%) and households headed by females (22%) was 8%.

Table 4.23: Matrix of analysis for poverty and inequality – Life circumstances indicators (continued)

	Education	Employment	Income	Household goods
AGE	Universal school attendance is about to be achieved in South Africa at younger ages. At age 6 years, 93% attended school. By age 16 years, only 90% of children were in school and at age 18 years, the proportion of those who have attended school dropped further to 66%. Few individuals aged above 24 years are attending school. The proportion of those attending school begins to fall around 14 and 15 years of age. The older an individual becomes, the less likely they are to attend school.	Of persons aged 15 to 65 years 775/1,000 (78%) earn less than the estimated per capita of 2006 (R3,690). The highest levels of unemployment were observed among the youth aged 15 to 34 years, of whom 49% remain unemployed, followed by 28% of those aged 25 to 34. This may average 77% of young people aged between 15 and 34. People with educational attainment of less than matric contribute highest to the levels of unemployment, as 61% of the unemployed population did not have matric in quarter four of 2011. The people who were unemployed in the fourth quarter of 2011 had been out of employment for more than 12 months (long-term employment).	The highest proportion of those with no income was among those with incomplete secondary education. The proportion of the population who earned no income changes from as high as 763/1,000 (76%) among those aged 15 to 19 years to as low as 156/1,000 (16%) among those aged 65 to 69 years The age group 45 to 49 years had the highest proportion of people who earn R12,800+ of about 63/1,000 (6%). Those aged 65+ years were more likely to be in income category of those earning <R1,601. No statistical difference is observed between 50 to 54 years and 55 to 59 years, while a small difference is observed between 50 to 54 years and 45 to 49 years. Those in age group 40 to 44 years are more likely to have higher income than any other age group.	For households headed by those aged 31 to 64 years, 6% of them had all eight goods (Indicator II) compared to households headed by the elderly (65+ years) at 3%. Households headed by the youth (18 to 30 years) do not measure well on indicator II, on possession of all items as only 2% had all the items. Only 85% of households headed by children had at least one item. Age of the household head showed that when one controls for other factors in the model, the older the household head, the more likely the household is of having all the household goods.

Table 4.23: Matrix of analysis for poverty and inequality – Life circumstances indicators (concluded)

	Education	Employment	Income	Household goods
PROVINCE	The province with the lowest proportion of those attending school was Northern Cape (27%). Mpumalanga had the highest proportion of those attending school, followed by Limpopo (76%), Eastern Cape (74%) and Gauteng (74%). The proportion of those in rural areas who attended school was more than those in urban areas. Educational attainment for people in rural formal settlements is among those who completed primary education. Those from Northern Cape and North West are more likely to have no schooling compared with those from the remaining provinces. Those in urban formal and urban informal areas are more likely to have completed Grade 12/Standard 10 or higher.	There were more people under informal employment status in Eastern Cape at 36%, followed by Mpumalanga at 32%. Gauteng had 9% and the least informal employment status was Western Cape at 17%. The highest ranked province with formal employment status is Western Cape with 83%, followed by Gauteng at 81%. There were more people under informal employment status in Eastern Cape at 36%, followed by Mpumalanga at 32%, Limpopo at 32%, KwaZulu-Natal at 30%, North West at 28%, Free State at 27%, Northern province at 25%, Gauteng at 9% and the least informal employment status was Western Cape at 17%.	More than 50% of respondents residing in Eastern Cape reported to have earned no income. Western Cape had the smallest proportion of those who earned no income followed by Gauteng. Provinces with higher proportion of blacks have higher proportion of those who earned no income. Free State had the highest proportion of people with no income. For the income category R1,601 to R12,800, such individuals can be found in Western Cape (RRR=1.6) then Limpopo (RRR=1.5) and Gauteng (RRR=1.4).	There were wide variations in the indicators by province of birth. Western Cape had the highest proportion of households in relation to indicator I, indicator II and indicator IV. Eastern Cape had the lowest proportion of households with at least one item at 86%. Households in Free State are about six times more likely to have all five households goods compared to those in Eastern Cape. Households headed by males were less likely to have either all five goods (indicator IV) and all eight goods (indicator II) compared with those headed by females.

Table 4.24: Matrix of analysis for poverty and inequality – Service delivery indicators

	Access to water	Access to electricity	Refuse removal
INTRODUCTION	Water quality service delivery is worst for those living in traditional homesteads with a score of only 48% compared with formal and informal dwellings, each scoring 92% and 93% respectively. Flush toilets with sewerage or septic tanks had the highest scores of 99% and 90% and the lowest were those with dry toilets and pit latrines at 74% and 76%, respectively.	80% of households in South Africa use electricity for lighting as the main source of energy. The proportion of households that use electricity for cooking stood at 67% and for heating at 59%. In all provinces, the proportion of households using electricity for cooking was lower than the proportion of households using electricity for lighting.	Only six in ten households have their refuse removed by local authorities, three in ten have their own disposal while one in ten do not have refuse disposal. The number of households from which the local municipalities/ private companies collect refuse has increased from 4,839,821 households in 1996 to 7,726,292 households in 2007, an increase of 2,886,471 households.
POPULATION GROUP	Share of good and very good water service delivery for Africans is the lowest with 84%. The probability that an African will have good quality of water service delivery is 84%, ranking least compared to coloureds (96%), Indians/Asians (96%) and whites (99%).	The proportion of households using electricity within those that owned and fully paid for their units, stand at only 80%, regardless of population group.	Households living in dwelling units that are owned but not fully paid, have the highest proportion of households whose refuse is collected by local authorities/private companies (92%), regardless of population group.
SEX	Of the households that are male-headed, 89% have good to very good water service delivery compared to only 83% for the female-headed households. The worse the services, the more the incidence of female household heads, as noted for predicted fair water services and predicted poor water services.	Female-headed households are disadvantaged in electricity use compared to their male counterparts. The male-headed households reported to have good quality of water services compared to their counterparts, the female-headed households, scoring 70% and 62%, respectively.	The proportion of male-headed households whose refuse is collected by local authorities/ private companies is higher than the proportion of households headed by females (67% and 55%, respectively).

Table 4.24: Matrix of analysis for poverty and inequality – Service delivery indicators (concluded)

	Access to water	Access to electricity	Refuse removal
PROVINCE	Despite the relatively high scores of access to water service delivery across the provinces as shown at 88% at country level and as reported by the UNSD (2006) report, and confirmed by the Community Survey (Statistics South Africa, 2007), the quality of at least good water service delivery remains at 68%. Lowest levels of access to water are observed in Eastern Cape at 76%. Households with access to water amount to 90%, with 62% rating the quality of the water as good.	Western Cape had the highest proportion of households using electricity for lighting at 85%, followed by Gauteng at 79% and Northern Cape at 69%. Limpopo had the highest increase in the proportion of households using electricity for lighting, at 45%. Free State had the highest increment in the proportion of those using electricity for cooking (at 34%), followed by North West (33%) and Northern Cape (26%).	Limpopo had the lowest proportion of households where refuse was collected by the local authorities/private companies (19%). Western Cape recorded the highest proportion (91%), followed by Gauteng (86%). North West had the highest increase in the proportion of households from which the local authorities/private companies collected refuse (from 36% in 1996 to 56% in 2007, an increase of 20%).. Free State had an increase of 11% (from 65% in 1996 to 76% in 2007).

Note: Age did not show any significant disparities in service delivery

4.9 Application of multinomial logistic regression on poverty and inequality factors from CS 2007

Table 5.1: Results of the multinomial logit for educational attainment and income

	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|
	<R1,601		R1,601–R12,800		>R12,800		Income not stated	
Population group								
Black African	1.457	0.000	0.366	0.000	0.073	0.000	0.280	0.000
Coloured	2.060	0.000	0.694	0.000	0.187	0.000	0.556	0.000
Indian/Asian	0.988	0.700	0.717	0.000	0.350	0.000	0.590	0.000
White	1.000		1.000		1.000		1.000	
Province of enumeration								
Western Cape	0.993	0.730	1.556	0.000	1.005	0.904	2.826	0.000
Eastern Cape	0.751	0.000	1.050	0.016	0.665	0.000	1.711	0.000
Free State	1.000		1.000		1.000		1.000	
Northern Cape	0.874	0.000	0.998	0.950	0.600	0.000	1.928	0.000
KwaZulu-Natal	0.803	0.000	0.899	0.000	0.640	0.000	1.532	0.000
North West	0.780	0.000	0.827	0.000	0.368	0.000	1.126	0.002
Gauteng	0.788	0.000	1.360	0.000	1.283	0.000	2.460	0.000
Mpumalanga	0.740	0.000	0.814	0.000	0.531	0.000	0.826	0.000
Limpopo	0.695	0.000	1.505	0.000	0.711	0.000	1.871	0.000
Education level								
Other	1.061	0.011	3.025	0.000	3.902	0.000	3.772	0.000
Never gone to school	1.222	0.000	0.469	0.000	0.959	0.718	0.832	0.000
Primary	1.000		1.000		1.000		1.000	
Secondary incomplete	0.668	0.000	1.498	0.000	4.742	0.000	1.410	0.000
Secondary complete	0.594	0.000	3.988	0.000	16.872	0.000	2.349	0.000
Post-secondary	0.569	0.000	11.494	0.000	108.553	0.000	5.329	0.000
Not stated	0.770	0.000	1.654	0.000	7.809	0.000	6.157	0.000

Table 5.1: Results of the multinomial logit for educational attainment and income (concluded)

	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|
	<R1,601		R1,601–R12,800		>R12,800		Income not stated	
Age of the individual								
15–19	0.084	0.000	0.013	0.000	0.017	0.000	0.224	0.000
20–24	0.303	0.000	0.107	0.000	0.035	0.000	0.309	0.000
25–29	0.533	0.000	0.321	0.000	0.207	0.000	0.614	0.000
30–34	0.693	0.000	0.480	0.000	0.587	0.000	0.574	0.000
35–39	1.077	0.000	0.789	0.000	0.688	0.000	0.778	0.000
40–44	0.877	0.000	0.806	0.000	1.254	0.000	0.785	0.000
45–49	1.071	0.000	0.871	0.000	0.922	0.044	0.915	0.004
50–54	1.000		1.000		1.000		1.000	
55–59	0.907	0.000	0.738	0.000	0.948	0.222	0.771	0.000
60–64	2.267	0.000	0.594	0.000	0.436	0.000	0.823	0.000
65–69	7.819	0.000	0.896	0.008	0.438	0.000	1.401	0.000
Gender								
Male	1.459	0.000	2.818	0.000	5.568	0.000	1.867	0.000

The multinomial regression models used primary educational attainment as reference for educational attainment. The coloured population was used as reference for population group. Eastern Cape was used as a reference province for analysis. Age group 50–54 was used as reference for age, and female was used as reference for gender. In relation to sex, males earn more income than women in every income category.

The results showed higher prospects or odds ratios for the coloured population group not to complete matric. The lowest likelihood of no schooling and no income was observed for whites.

The results for the province of birth used Free State as the reference province. It was observed during the bivariate analysis that Free State had the highest proportion of people with no income.

For the income category R1,601 to R12,800, one is more likely to find such individuals in Western Cape (RRR=1.6) than Limpopo (RRR=1.5) and Gauteng (RRR=1.4). For the higher income category, individuals are more likely to reside in Gauteng and Western Cape. North West has the least likelihood of finding someone with higher income. It can be concluded that Gauteng and Western Cape are the provinces where there is a bigger likelihood of finding individuals with higher income (Van der Berg et al., 2007).

The risk ratio decreases with the increasing level of education, implying that the less educated a person is, the higher the probability of this person being found in this income category. When controlling for educational attainment, similar patterns were observed for all provinces; that is, those who have incomplete secondary education make up the highest proportion of the population with no income, while those with higher educational levels make up the biggest proportion of those who earn R12,801 and above.

Thus, one can conclude that incomplete secondary education is one of the factors that lead to no income (Dieltiens et al., 2009). Further investigation may need to be done on the relationship between income and education in South Africa controlling for the period of completion. Across the population, lack of education, employment, and income result in a higher likelihood for people to be trapped in poverty and inequality. This is more prominent amongst black and coloured population groups.

4.9 Application of principal component analysis

PCA is a statistical technique that is used to transform a number of correlated variables into a reduced number of variables called principal components (Richardson, 2009). Furthermore, it can be used to determine important factors explaining the socioeconomic status of a household (Sricharoena & Buchenrieder, 2006) and for creation of indices, for example, poverty, wealth or asset index (Xhafa & Nurjana, 2015). The creation of indices to assess the socioeconomic position of a household based on housing and household services is used as an alternative to using income and consumption expenditure due to lack of this

information in surveys as a result of the difficulties experienced in collecting this data (Howe, Hargreaves & Huttly, 2008).

Based on the eigenvalue of 1.0, Table 5.2 shows that 14 principal components were extracted by PCA, all of which explained 74.3% of the variation observed. The first component explained 24.3%; the second 8.8% and the third 5.7%.

Table 5.2: Variance explained by principal components

	Initial eigenvalues		
Component	**Total**	**% of variance**	**Cumulative %**
1	9.483	24.316	24.316
2	3.438	8.816	33.131
3	2.219	5.689	38.820
4	1.929	4.947	43.767
5	1.570	4.027	47.794
6	1.339	3.433	51.227
7	1.298	3.328	54.555
8	1.215	3.115	57.670
9	1.179	3.024	60.694
10	1.141	2.926	63.620
11	1.106	2.835	66.455
12	1.033	2.648	69.103
13	1.021	2.617	71.719
14	1.006	2.580	74.300
15	.989	2.536	76.836
16	.977	2.505	79.341
17	.881	2.259	81.600
18	.802	2.058	83.658

Table 5.2: Variance explained by principal components (concluded)

Component	Initial eigenvalues		
	Total	% of variance	Cumulative %
19	.745	1.910	85.567
20	.700	1.794	87.361
21	.684	1.755	89.116
22	.675	1.732	90.848
23	.550	1.409	92.257
24	.526	1.348	93.605
25	.507	1.299	94.904
26	.484	1.240	96.144
27	.385	.988	97.131
28	.383	.983	98.115
29	.363	.931	99.046
30	.350	.898	99.943
31	.022	.057	100.000
32	5.265E-15	1.350E-14	100.000
33	2.413E-15	6.186E-15	100.000
34	1.031E-15	2.643E-15	100.000
35	3.049E-16	7.819E-16	100.000
36	-1.011E-15	-2.593E-15	100.000
37	-2.748E-15	-7.047E-15	100.000
38	-3.436E-15	-8.810E-15	100.000
39	-8.907E-15	-2.284E-14	100.000

For this study, a graphical method (scree plot) was used to select the number of factors to be extracted for this analysis. The scree plot portrays all eigenvalues by component and is used to identify a point at which a smooth decrease of eigenvalues appears to level off (Krishnan, 2010). It is observed that after Component 6, there is a smooth and therefore, only six components were extracted for analysis. These components explain 51.2% of the total variation.

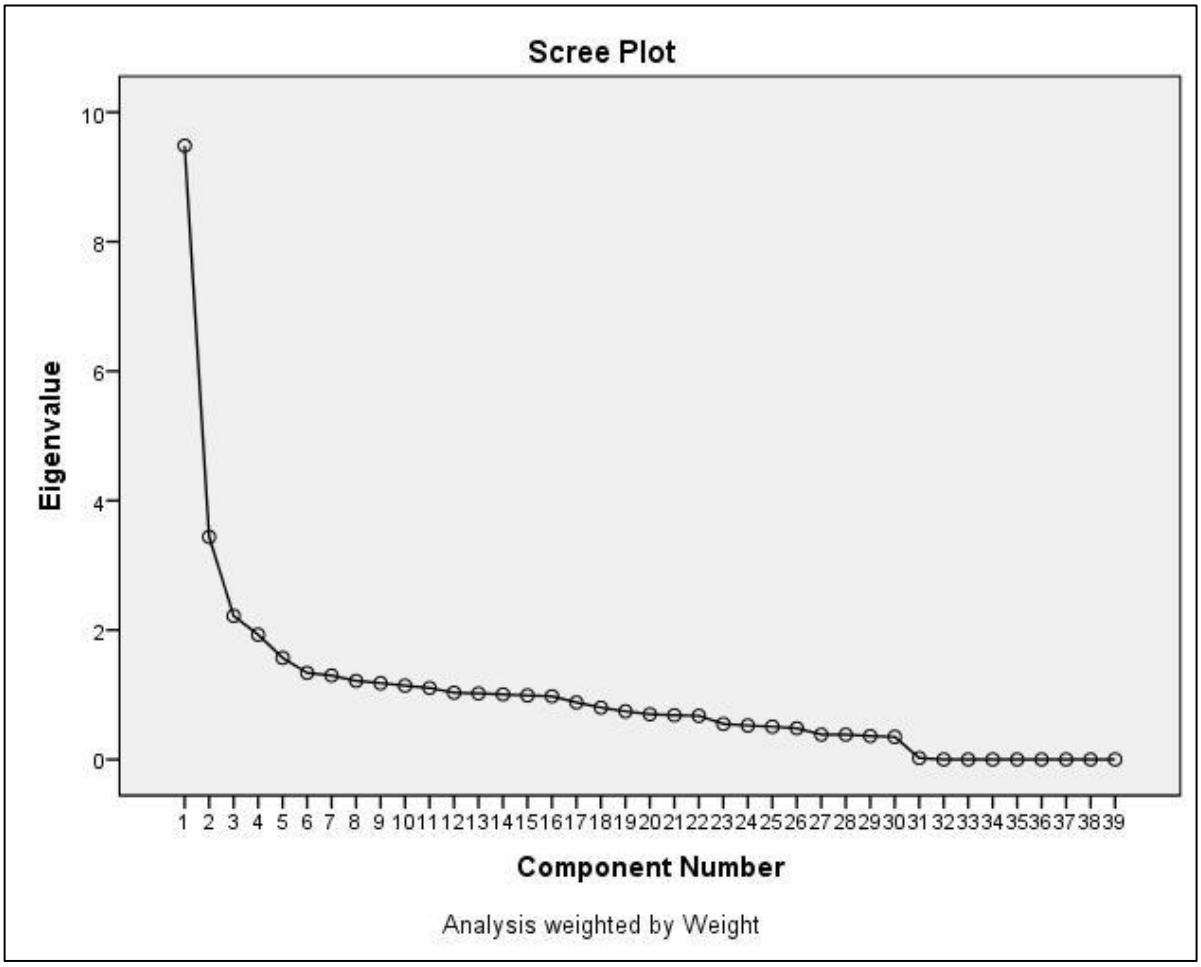


Figure 5.1: Scree plot of eigenvalues of components

More results from the PCA output showing Varimax rotation for the selected six principal components are presented in Table 5.3. Appendix II shows the rotation matrix for all 14 components.

Component 1, representing nearly a quarter of the total variation is composed of seven variables, which can be summarised as the “service delivery” component. Variables with higher positive loadings included flush or chemical toilet, refuse removed weekly and piped water in dwelling, while the negative loadings were pit or bucket toilet, other refuse removal, piped water in public places and other energy used for heating. These results indicate that better household circumstances were associated with better delivery of services and the opposite was true for poor service delivery indicators. This component can also be used to describe the general socioeconomic status of households since it is the first component.

The second component, composed of ownership of “basic housing and household goods”, explained 8.8% of the total variation. Ownership of television, radio, refrigerator, cellphone was positively associated with economic status while having 1–2 rooms had a negative association.

“Better energy source” was the third component, explaining 5.7% of the total variation. A positive association was observed for use electricity and gas for lighting, cooking and heating while a negative relationship was observed for other energy used for lighting and heating. “Use of paraffin” was another component related to use of energy, which was the fourth component explaining 4.9% of the total variation. The use of paraffin for all purposes was positively associated with this component.

The fifth component, “unfavourable service delivery” was positively associated with other sources of water (borehole, spring, dam, etc.); traditional housing; and no toilet and explained 4.0% of the total variation.

Lastly, the sixth component, “luxury goods” was positively associated with ownership of internet, computer, landline telephone and seven or more rooms. This component explained 3.3% of the total variation.

Table 5.3: Results of PCA based on Varimax rotation factor matrix

Variables	Component					
	1	2	3	4	5	6
Flush or chemical toilet	.834					
Pit or bucket toilet	-.826					
Refuse removed weekly	.824					
Refuse removed by other	-.818					
Piped water in dwelling	.641					
Piped water public places	-.599					
Has television		.613				
Has radio		.611				
Has refrigerator		.578				
Has cellphone		.575				
1–2 rooms		-.522				
Other energy for lighting			-.780			
Electricity & gas for lighting			.604			
Electricity & gas for cooking			.583			
Electricity & gas for heating			.540			
Other energy for heating	-.502		-.512			
Paraffin for heating				.787		
Paraffin for lighting				.746		
Paraffin for cooking				.730		
Other sources of water					.726	
Traditional housing					.690	
No toilet					.604	
Has internet						.754
Has computer						.705
7+ rooms						.647
Has landline telephone						.559

The investigation of how the predictors of life circumstances and service delivery have changed across the population over the period 1994–2007 showed various findings. Poverty and inequality are perpetuated more by life circumstances indicators and result in disparities in service delivery.

To answer what are the factors underpinning poverty and inequality in South Africa in the post-apartheid period, education and unemployment rank highest across the black and coloured population as factors that underpin poverty and inequality in the post-apartheid period. Lack of education results in people struggling to get into employment to earn an income and thus affect the ability of people to acquire household goods. Low education levels amongst the coloured population group can be attributed to high levels of dropout between the ages of 14 and 19.

4.10 Conclusion

Education, employment, household income and access to household goods as measures of life circumstances show high levels of disparities across the population. Education shows a higher level of influence on employment and income. Employment shows higher levels of employment for women in the informal sector as compared to males.

Measures of service delivery have indicated high disparities across the population in relation to access to service delivery. Provincial disparities show better access to provinces that are more urban as compared to the rural provinces.

Education, employment and income remain the determinants of the state of poverty and inequality in South Africa since 1994. The sign of social exclusion of young people is observed as school dropouts; they remain behind in educational progression. The school dropout syndrome is the beginning of exclusion of young people from training, which manifests in their future development and employment prospects.

Inequality in learning begins with the inability of youth to progress into higher learning. While there is progress in attendance, it still poses a challenge over the development of the economy and infrastructure. Mpumalanga has the highest levels of attendance at younger ages, but lower levels of educational attainment.

Declines in attendance and attainment at older years are attributable to migration and changes in living conditions of the parents.

Higher attendance in tribal areas for the age groups 6–16 years is an interesting finding. Reasons for young people leaving school need to be understood and interventions should be developed to deal with this structural issue of poverty.

The low likelihood of coloured and black children in school attendance (especially at youth ages) needs attention by government, in order to promote learning as a key to the development issue. A high proportion of people between the ages of 25 and 64 years who have not completed matric pose the difficulty of an unskilled labour force.

Reduction in levels of illiteracy is a positive sign alongside the increasing number of people getting higher degrees, but the pace is not meeting the need. Negative social aspects of educational attainment for the youth include teenage pregnancy, caring for sick parents, lack of money, and transport (Statistics South Africa, 2012). This perpetuates the state of the NEET phenomenon emerging among young people in the country. Educational attainment remains high among whites and Indians and low (and decreasing) among Africans and coloureds. Based on this argument, racial discrimination and disadvantages for African and coloured population groups are observed as structural phenomena in society.

The positive relationship between educational attainment and employment was established. Urban inclination of level of employment became clearer while racial disparities show that whites were at an advantage, with 77% being in employment. Gender disparities show that males are more favoured by labour force participation. Males in all population groups make up the highest proportion in the formal-employment sector, and job opportunities are more inclined towards the educated.

Racial disparities support the trend from education and employment that support more whites than the other population groups. The African and coloured populations remain most disadvantaged, both in education and employment.

While there are no significant gender disparities in school attendance, they are observed in employment. Disparities between female and male-headed households show employment favouring male-headed households.

A high proportion (42%) of households stating no income is a source of inability of people to compete for resources. Provincial disparities in income remain the source of inequalities by place of stay or geographical space.

Measuring the ability of households to acquire household goods is related to the inability of households to compete for resources, displaying the elements of the structural theory of poverty (Austin, 2006).

Political economic distortions (Andy, 2011) are observed in disparities across income and household goods. The inability of households to have buying power due to lack of income also relates to the inability of people to find employment, mostly due to low levels of education.

Cumulative and circumstantial origins of people's livelihoods are observed in the disparities in access to services. The poor remain marginalised and service delivery favours urban versus rural geographical settings.

Based on all indicators for life circumstances and service delivery, Africans and coloureds remain in a state of disadvantage, discrimination and social exclusion.

CHAPTER FIVE

DISCUSSION OF RESULTS

This chapter comprises a discussion of and reflections on the results and findings presented in Chapter 4. Implications for the trends in life circumstances and service delivery across the population are reflected upon to achieve the first objective of the study. Chapter 4 has used descriptive and predictive analyses to describe life circumstances and service delivery. These meta-theoretical reflections highlight how poverty and inequality manifest themselves across the population to achieve the second objective of the study.

Why undertake meta-theoretical reflections? Harrison et al. (1995) argue that one way to ensure correctness of the statistical inference performed by computer theorem is to ensure that all proofs are done step-by-step in a simple, more or less traditional, deductive system. However, some believe such an approach will never be efficient enough for large, complex proofs (Harrison, 1995). One alternative, commonly called reflection, is to analyse proofs using a second layer of logic, a meta-logic, thus justifying the abbreviating or simplifying of proofs and making the kinds of shortcuts humans often do or appealing to specialised decision algorithms (Harrison, 1995).

The structural theory of poverty in South Africa has a bearing on the transition in living conditions of the population since 1994. The relationships between the life circumstances and service delivery indicators with socioeconomic indicators are explained though trends and changes observed over time. The multivariate analytical approach using logistic regression models has shed light on determining the predictors of life circumstances and service delivery since 1994. This alternative analytical approach contributes to the expanded measurement of poverty and inequality through the use of broad measures of life circumstances and service delivery. Having interrogated individual indicators for life circumstances, education emerged as the most significant determinant of poverty and inequality.

5.1 How each of the life circumstances and service delivery indicators related to the demographic indicators since 1994

In measuring the transition in living conditions of the population since 1994, vast disparities are observed alongside high disparities across life circumstances and service delivery as a sign of structural theory of poverty. Based on the life circumstances measures, education ranked highest as an indicator underpinning poverty and inequality.

The results show that the pattern of high dropout rates and disparities in school attendance and educational attainment has been persistent across the population. The descriptive analysis showed that an undesirable proportion of individuals (young people below the age of 15) attended school. Although the proportion of children aged 6 to 15 years not attending school (4%) may seem small, it is important for government to ascertain the reasons why these children are not in school.

The proportion of those who are attending school aged 18 years, dropped to 66%. This rapid drop coincides with joining university and other institutions of higher learning. No major differences were observed in levels between males and females.

Trends in school attendance have remained constant over the post-1994 years. After age 15, the dropout rates begin to rise. The implication for the dropout among those aged 6–24 years is that currently, few individuals aged above 24 years are attending school. The challenge that remains is whether someone with Grade 9 has acquired enough skills to be employable. The explanation used for school dropout is that high costs in an environment of absolute poverty drives learners from school, which is unsatisfactory in the South African context (Dieltiens & Meny-Gilbert, 2009).

Generally, for all the groups, school attendance was well above 90% up to age 14 years. The province with the highest school attendance was Mpumalanga, which had almost 100% of its children aged 6 to 15 years attending school. In urban

areas, seven in ten children attended school compared to eight in ten within the rural areas.

Most individuals aged 25 to 64 years had some secondary education, accounting for slightly more than those persons in South Africa who had no schooling. Overall, the proportion of those without any level of school has been reducing (from 19% in 1996 to less than 9% in 2007). The proportion of those completing secondary level has also been decreasing. The white population group is still the most advantaged in relation to academic achievement. The proportion of the coloured population group with high educational attainment is still low.

These findings suggest that there is a need to help those staying in urban informal areas to advance to higher levels, and to complete at least Grade 12/Standard 10. There is an indication that Mpumalanga has higher dropout rates at matric level than any other province. KwaZulu-Natal and North West had the lowest educational attainment.

The proportion of individuals working, by education, increases with an increasing level of education, irrespective of the population group. In South Africa, an expanding literature shows educational inequality to be a determining factor in earnings distribution (Van der Berg et al., 2007).

The high proportion of unemployed people within the African population group is a reflection of people working in jobs that do not require skills, as most of them do not possess higher education. The province with the highest formal employment status is Western Cape with 83%, followed by Gauteng at 81%, while the lowest percentage was recorded for Eastern Cape at only 64% of the country's share of the formal employment status. Western Cape has the smallest proportion of those who earned no income, followed by Gauteng.

Overall, the study revealed that within the economically active population and working population, two in five do not have any income. Education has been well documented as the most important social economic variable. It transforms individuals and societies, and in modern times, it is a yardstick used to determine

the individuals' available opportunities (Van der Berg et al., 2007). There is a positive relationship between high income and level of education. From around age group 35 to 39 years, the proportion of those earning some income and those in the higher income group is high.

The proportion of households with landlines is on a decreasing trend. The least common household goods available were the computer (16%) and internet (7%). For Africans, some of the households reported that they did not have any household goods in the analysis. Households headed by children were the most disadvantaged. Individuals who do not have a good education may be regarded as poor since they do not have access to high-paying jobs, which may be the result of low educational attainment.

Analysis of access to water indicated that 89% of the households that are male-headed have good or very good water service delivery compared to only 83% for the female-headed households in the same category. Since 1996, the proportion of households using electricity has been increasing steadily. Eleven years later in 2007, Western Cape still had the highest proportion of households using electricity for lighting, but the gap had narrowed down by about one-third (33%) between said province and Eastern Cape, which still had the least proportion of households using electricity for lighting.

Free State had the highest increment in the proportion of households using electricity for cooking (34%), followed by North West (33%) and Northern Cape (26%). Electricity use by gender shows that female-headed households are disadvantaged in electricity use compared to that of their male counterparts. Households in the formal dwelling type have the highest proportion of those using electricity as a form of energy. Less than 10% of formal households do not have electricity for lighting.

Limpopo and Eastern Cape had the highest proportion of households with no refuse disposal, both at 14%. The proportion of households with own refuse disposal increased in a number of provinces, namely Eastern Cape (7%), Mpumalanga (5%), Northern Cape (4%), Gauteng (3%) and Limpopo (1%). The

proportion of male-headed households whose refuse is collected by local authorities/private companies is higher than the proportion of households headed by females (67% and 55%, respectively).

The proportion of households whose refuse is collected by local authorities/private companies decreases with an increase in the size of the household (from 69% for households having two persons to a low of 42% for households having eight or more persons). The results show that the proportion of households whose refuse was collected by local authorities/private companies by type of dwelling unit did not change much between 1996 and 2007.

The results show that education, employment and income are the main indicators underpinning the macro-elements of poverty and inequality. They manifest themselves further in the issues such as household acquisition of goods and access to services. Education is the number one factor for employment prospects and the ability to earn an income. Analysis of the data provides trends in how the country has developed over time, based on the life circumstances indicators. While improvements have been observed on the one hand, many remained behind due to lack of education.

What comes out of the educational analysis is the high level of school dropouts. This may be related to households not having enough income for children to continue in school, especially in the secondary schooling cycle. Many youth do leave education and ultimately remain trapped in unemployment. Teenage pregnancy and having to take care of family members have been raised as the main reasons why many young people leave school; this is according to the General Household Survey (Statistics South Africa, 2011).

Education remains a commodity for people to develop. Processes like migration and urbanisation form the basis for the changes observed in the population.

The high proportions of people out of school and out of work show no positive developmental trajectory for the country over the past 18 years. Income disparities observed are a sign of high levels of inequality across the South African

population. While there has been an increase in the average household income to R109,000 per annum as reported in the 2005/06 Income and Expenditure Survey (Statistics South Africa, 2007), income disparities remain vast across sex and population groups.

It has been observed that the rate of increase is higher among African households when compared with other population groups (Van der Berg et al., 2007).

5.2 Using circumstances and service delivery indicators using exploratory models for expanded poverty and inequality

A process to determine the disparities in life circumstances and service delivery indicators has confirmed the hypothesis that social heritage, including education, employment, income as well as chosen indicators for access to service delivery had different outputs across the population. Measures of schools attendance, educational attainment, employment and unemployment, income and acquisition of household goods have shown high disparities across population groups, age and gender. These results paint a picture of a highly unequal society, based on the observed disparities in the living conditions of the population.

5.2.1 Disparities in life circumstances indicators since 1994

As an observation in thesis, raising education levels among the least skilled can increase their employment stability and relative earnings and so reduce income inequality and poverty, even though not all people are likely to gain from education. More motivated and able people may choose to remain in education longer and attain higher qualifications than less motivated and able people (Woolard & Leibbrandt, 2006).

It is evident that employment and earnings are positively related to education, but the difficulty lies in assigning causality, because important variables related to both labour market outcomes and education (such as family background, race and ability) are typically not available (Taylor et al., 2012).

Using sophisticated analysis combined with personal experience in the classroom, Marsh (2011) whom this thesis disagrees with, not only argues that education has little impact on poverty and inequality, but rather that the mistaken beliefs actively shape the way countries structure their schools and what gets taught. He further argues that the myth cherished by journalists, politicians and economists that growing poverty and inequality in the United States can be solved through education alone should be debunked. It is important to ask why people cannot teach or learn their way out of inequality (Marsh, 2011).

While it is always important to ensure that there are new conclusions out of the data, meta-theoretical reflections in this chapter highlight that evidence around poverty and inequality is riddled with non-consensus, inconsistencies, arguments, disagreements and different points of view.

For South Africa, this thesis supports the most important role of education in dealing with poverty as a finding in Chapter 4. The potential micro-economic (private) returns to education and skills that macro-economic models investigate, relate to the contributions of skills and human capital to national economic growth (social returns). Within this context, macro-economic growth leads to a more affluent population. Education is recognised as a key factor of economic development and technological progress (The Presidency, 2011).

Education expansion, if concentrated on the least skilled, may reduce income inequality and poverty through raising growth and income in the economy. New growth theories explicitly consider education as central to economic growth. Human capital is a vital factor in improving production levels of output in the economy, which implies that the growth rate of output depends on the rate at which countries accumulate human capital over time (Taylor et al., 2012).

The human capital theory implies that an effective anti-poverty strategy should incorporate increasing the skills of people in poor (low-income) households, as this will increase their productivity and suitability for paid employment and career advancement within employment (Taylor et al., 2012). The signalling (or screening) theory recognises that the positive effect of educational attainment on

earnings may not result from enhanced productivity but because education signals innate personality characteristics such as ability and motivation (Taylor et al., 2012).

Most individuals who have been out of work for considerable periods in the United States are classified as people who are not in the labour force (Feldstein, 1999); the same can be said for South Africa in the post-apartheid period. More than 50% of unemployed people in South Africa have been in long-term unemployment, which is defined as more than 12 months of unemployment (Statistics South Africa, 2014).

In the NIDS report there is documented evidence, consistent with the dual labour market theory for example, that entering work is an important factor in escaping poverty (Leibbrandt & Woolard, 2012), that an increasing proportion of poor people are in work. This suggests that employment has become a less secure means of exiting poverty over time. Supporting this evidence from the Quarterly Labour Force Survey results of quarter four of 2011 (Statistics South Africa, 2012), the South African long-term unemployment is increasing, with many people (close to 60%) in this category having no matric.

If there are insufficient appropriate jobs available for highly skilled people, then highly skilled workers who are unable to find suitable jobs take those of lower-skilled workers (Simkins, 2004). This raises the possibility that expanding education may reduce employment opportunities for mid and low-skilled workers. Therefore, aggregate employment levels may not change (skilled workers will displace lower-skilled workers) (Van der Berg et al., 2007) and so income inequality and poverty may persist.

In contrast, skill-based technical change theories suggest that the demand for highly skilled workers will continue to grow and as such, workers need to take full advantage of changes in technology. For South Africa, education will increase opportunities for the unemployed people, especially the youth.

The human capital and dual labour theories are mostly concerned with the private (or internal) returns to education and skills. These benefits accrue to the individual (in the form of, for example, more stable employment or higher earnings). In contrast, social returns are those that benefit the economy more generally (e.g. through higher output and economic growth, better health, lower crime). Most of the discussions relate to private returns, although the authors refer to the spillover effect on the wider economy where relevant (Taylor et al., 2012).

Dealing with high levels of unemployment demands skilling the labour force and reducing unmatched skills for economic development of a modern economy. Lack of positive throughput from education into the labour market should be identified as a number one challenge for the development of the country as it manifests itself in the poverty and inequality outcomes (Van der Berg et al., 2007). The country has a highly unproductive labour force, while employers require skills.

Arguing that the rich get richer, Feldstein (1999) elaborates by saying that there has been a relatively greater increase in higher incomes in recent years in the United States and in some other countries. Some parts of the rise in top incomes reflect the fact that the cut in top marginal tax rates in 1986 caused high-income taxpayers to shift the form of their compensation to taxable cash from fringe benefits and other non-observable forms of compensation.

Persistent structural unemployment has been attributed to skills mismatch in the wealth of evidence currently available in South Africa as well as by international standards (Statistics South Africa, 2013). What then is the state of the South African labour market and its contribution to the reduction of poverty and inequality? Taking a long view, the labour market moves in tandem with the economy. It is not possible to have an expanding labour market in a shrinking economy (Statistics South Africa, 2012) and an ever-expanding economy will definitely create more jobs, even if one allows for the normal lags between growth and job creation. This is borne out by South Africa's own experiences over the past 30 years (Landman, 2003).

Evidence shows population growth rates, declining mortality, the disparities across provinces, population groups, age groups and gender resulted in increased inequality, while poverty shows a slight declining effect. For this to be a long-term problem, the demand for high skilled workers needs to be unresponsive to supply. This counters the traditional economic theory that argues that firms can almost always adapt their production processes to minimise costs.

When there is an excess supply of high-skilled workers, their wages are reduced relative to lower-skilled workers and firms have an incentive to redesign production techniques to make use of the relatively cheaper skilled workers. This eliminates situations in which workers operate below their skills levels, and thus an excess supply of skills is a short-term phenomenon, resulting from a lack of coordination between individuals and firms.

Theoretical underpinnings and empirical evidence from five studies applying data from the censuses of 1996, 2001 and 2011 (Statistics South Africa, 1998a; 2004; 2012a) provide evidence of unpalatable social results that manifest themselves as poverty and inequality across the population. Major disparities emerge across the provinces based on population dynamics and social transition (Woolard & Leibbrandt, 2012).

The primary sector is characterised by good working conditions, high wages, job security and promotion prospects, while the secondary sector is characterised by poorly paid unstable employment with poor working conditions. Workers in the secondary sector find it difficult to move into the primary sector due to the nature of their employment, irrespective of their education, unless there is sustained and unmet demand from the primary sector for more highly-skilled workers.

The literature also suggests that the concept of individuals benefiting in terms of earnings from acquiring skills is at least partly caused by the fact that as education expands and average educational attainment increases (Statistics South Africa, 2012), the average inherent ability of any individual achieving a particular level of education falls. For example, the increase in access to university has widened the ability distribution of university graduates (Statistics South Africa, 2012). This has

resulted in graduates being employed in a wider variety of jobs with different earnings distributions.

Unless particular attention is paid to raising skills at the bottom of the skill distribution and on improving the security of the jobs that lower-skilled workers enter, the result is likely to be an increasingly segmented labour market in which the unskilled are confined to unstable low-paid work, which will exacerbate poverty and income inequality (Taylor et al., 2012). The South African labour force comprises unskilled and semi-skilled people and high proportions of youth out of school (Statistics South Africa, 2012).

The longer-term aims of the United Kingdom government include raising employment levels and reducing poverty (Kristol, 2011). This is in line with the objectives of the National Development Plan (NDP) 2030 to grow the economy and create jobs as a cause towards reducing poverty (The Presidency, 2011). The key part for the improved human capital should involve increasing qualification and skills levels across the population, with government funding targeted at reducing the size of the low-skilled workforce, and thus the low-waged workforce.

The effectiveness of the abovementioned approach rests on the assumptions that enhancing people's skills improves their employment prospects and that concentrating funding and support on those with the lowest skills will narrow the wage and income distributions (Feldstein, 1999).

The labour market comprises a formal employment sector (70%) and informal employment sector (16%). There is a wide gap in income distribution across all race groups, and those dropping out of school are due to a lack of income. Rising inequalities within race groups and a large and growing African middle class have been evident in recent years; with shifts in public spending, inefficient social delivery and lack of managerial skills, poverty is likely to reduce, but inequality will remain high. There is a lot of evidence pointing to a rapid decline in asset poverty.

Income distribution remains skewed with the majority of persons having no income or very little income. Within the economically active population, two in five people

do not have any income. The highest proportion of people earning less money remains among those without any level of education; what does the future hold?

There has been a slight increase in the proportion of national income received by the poor and a slight decrease in the proportion received by the very rich (Kristol, 2011). The same observation is evident is South Africa as stated in Chapter 4. What goes on in-between is a complex muddle, and economic analysts can tease few unquestionable inferences from the data. Moreover, the very methodology of studying income distribution has become ever more controversial over the last two decades. Just what has to be included in the concept of income becomes less clear every time a new governmental entitlement programme is launched, whether it involves food, housing, medicine, or other benefits (Kristol, 2011).

There are other effects that must be considered and that may act against processes such as building skills to improve chances for employment and earnings. Improving skills among the population will increase competition for high-skilled jobs, which, if the supply of such jobs is limited, induces a fall in relative wages. The same can be said for South Africa. Increasing skills in an economy with limited demand for skilled workers also leads to highly-skilled workers seeking low-skilled jobs, potentially pushing lower-skilled workers out of employment.

Consequently, income inequality and poverty may actually increase. This may also explain rising income inequality within educational groups, as people with the same educational attainment become employed in a wider variety of jobs with different wages, or experience different employment trajectories (Statistics South Africa, 2012). Therefore, education remains important but not the only solution for South Africa, which currently has high levels of skills mismatch.

Taylor et al. (2012) have reviewed these theories and the relevant evidence which is used as a basis for an estimating framework that projects the effect on poverty levels and inequality of different skills distributions. The increase in higher income has been the result of four principal factors as recommended by Taylor et al. (2012).

First, there are now more individuals with advanced education and enhanced marketable skills, and market forces reward these high skills relatively more than they did in the past. Thus, individuals have strong incentives to acquire these skills and to select occupations in which such skills are rewarded. Second, entrepreneurial activities are on the rise. The creation and growth of new businesses has been an important source of the large number of individuals with high incomes and significant wealth (Feldstien, 1999).

Third, high-wage individuals work increasingly long hours. There is evidence about investment bankers, lawyers, and other highly-paid professionals who are now working 70 or more hours a week, twice the weekly hours of a typical employee. Dora Costa (2012), an economic historian at MIT, has recently reported that this observation is part of a more general trend toward longer working hours for higher-paid employees, a reversal of the earlier tendency of those with lower wages to work longer hours. The resultant measured inequality has increased.

Macro and micro policy applications such as city sizes, urbanisation and measurement (using complex methodologies), urban function index, and the space economy continue to point to the complexity of poverty and inequality. Of course, measuring the incomes of the lowest income group is not a simple task. Cash income overestimates the number of poor.

A broader measure that includes in-kind benefits like healthcare and housing suggests much less poverty in South Africa (Statistics South Africa, 2014). There is also a problem in classifying someone as poor if his income is only temporarily low (Woolard, 2002).

Feldstein argues that sociologists who have studied the poor directly and spoken to them about their living conditions (a research method that economists use too little) have been puzzled by how the poor could live on so little income. Those who have gained the confidence of the poor discovered the answer: the underground economy (Feldstein, 1999).

It remains critical to unpack, understand and bring consensus in the discourse for measuring the relationship between location of household and poverty in society. Poverty and inequality manifest themselves in society in a manner that shows social exclusion as a state of being.

Evidence from the Income and Expenditure Surveys show that considerable levels of earnings and income inequality exist even if the population consisted of only highly-skilled individuals who on average receive high wages (Statistics South Africa, 2012). It also indicates the need to ensure that the policy focus remains on improving the skills of the least educated and least skilled individuals in the population, so that they are able to compete for available jobs and do not get displaced by more qualified workers.

Studies by the Organisation for Economic Cooperation and Development (OECD) focus more exclusively on developed countries and also find associations between human capital and economic growth. Leibbrandt et al. (2010) argue that countries that expanded their higher education more rapidly during the 1960s experienced faster growth, and difference in educational attainment accounts for most of the output variations across OECD countries (Leibbrandt et al., 2010).

Woolard and Leibbrandt (2006) argue that the poverty line should be developed and used as a basis for statistical measurement of poverty. The picture is complicated by two other factors. First, the rising proportion of poor families that have income from employment, which is consistent with dual labour market theories. This is partly due to a combination of low earnings and household employment patterns, which indicate that a single earner within a family may not be sufficient to raise the family out of poverty (Woolard & Leibbrandt, 2006).

Second, they argue that the impact of educational attainment on earnings is becoming increasingly dispersed; some individuals benefit more in terms of earnings from acquiring skills than others (Leibbrandt et al., 2010)

5.2.2 Disparities in service delivery indicators since 1994

In order to improve water quality, service delivery should target the low-income households, dry and pit latrines, traditional types of dwelling, female-headed households and the African communities (Statistics South Africa, 2012). Other characteristics that need to be examined further are cultural factors, which influence the tendency to accept innovations and ownership of the water service delivery processes and subsequently the services delivered.

The findings of this thesis indicate that the worst quality of water in the country remains among those people living in the traditional homesteads and informal housing arrangements. The African population group remains behind in relation to coverage for quality water, notwithstanding the fact that this population group forms close to 80% of the entire population of South Africa. What does this mean for development in the country and better livelihoods for the poor (Ozler, 2007)?

Of the 15 million households in South Africa, 85% have access to electricity for lighting, while 74% use electricity for cooking and 59% use electricity for heating. In all provinces, the proportion of households using electricity for cooking is lower than that of households using electricity for lighting (Statistics South Africa, 2012).

The results of this thesis indicate that the disparities in levels of service delivery are not the determinants of poverty and equality, but the outcomes thereof. Structural poverty and inequality in South Africa manifests itself across the population mainly through life circumstances, not service delivery. Based on these results, it can be concluded that education, employment and income determine the levels of poverty and inequality across the population in a manner that, while others progress, many remain discriminated against.

5.3 Determinants of poverty and inequality in South Africa since 1994

Identifying the multivariate predictors of poverty and inequality in South Africa was achieved through an integrated statistical method. The objective of predictive analysis was to determine relationships/associations between living conditions and access to services as well as across socioeconomic indicators.

Predictive analysis has confirmed that education enhances employment prospects and levels of income, based on the type of job an individual obtains. South Africa should be even more worried in the next decade about the levels of educational attainment for the people. School dropout rates have been increasing over the period 2001 to 2011. As school attendance increased, close to universal standards in the young ages, many remained behind after the age of 16 years.

The impact of educational attainment on the labour market outcomes cannot be underestimated. The high numbers of young people not completing secondary education and dropping out of school from the age of 16 pose negative throughput from the education sector to the labour market. The current labour market is characterised by very high and increasing levels of unemployment in the post-apartheid period. This may be ascribed to labour market discrimination.

The predictive analysis supports the findings that there are high disparities in education, employment and income across the population. Accountability of government in providing education as a cornerstone to a better life cannot be judged by school attendance but by educational attainment and disparities observed across all dependent variables in the population. The disparities are of multidimensional nature, manifesting themselves in different forms across population group, sex and province of residence.

Educational attainment has been identified in the predictive analysis as a primary indicator for social exclusion and deprivation across the population. Many families are therefore trapped in unemployment due to low educational attainment. The

relationship between having a job and educational attainment is more complex in the current state of the population.

Throughput from the educational system does not meet the demands of the labour market. High levels of young unemployed people are a sign that the youth may think they have the skills required for them to be employed and they leave school early, and look for jobs, but employers do not find the skills among them and hence they remain unemployed. The most worrying challenge is the skills mismatch between the people looking for jobs and the skills demanded by the current economy.

A high proportion of young people between the ages of 15 and 35 years (60%) are unemployed and looking for jobs, but do not have matric. As such, the country ends up with a good number of young people who are not in education, employment or training (Statistics South Africa, 2012). This is a sign that the labour force is perpetually not constructively engaged, marginalised and unemployable, resulting in a highly unproductive labour force.

There are scarce jobs for the unemployed, a phenomenon observed in many developing countries. Labour market indicators are vital for the quality of life for employees, income is directly determined by the type of job a person holds. Disparities are more complex and vary from community, population group, sex and age. When predictive analysis is conducted on acquisition of household goods as a measure for poverty, concepts of utility, acquisition and consumption are important. The main angle of this analysis was acquisition.

The results indicate that education, income and acquisition are positively correlated. There has been little attempt in the literature to analyse welfare in households using these simple methods to understand underlying factors for the ability of households to acquire goods. Education is the most significant underlying factor with the highest variation as far as acquisition of goods in households is concerned.

Income is another significant determinant of household goods acquisition. Households in Eastern Cape were identified as having fewer household goods compared with other provinces, using bivariate and multivariate analysis. Female-headed households are less advantaged. Analysis of the access to services has shown higher levels of coverage across the population, but a lot remains to be achieved. Coverage and quality issues need to be dealt with better.

An increasing number of households in the country or the concept of unbundling households causes a moving target for rolling out services to the population. The rapid increase in the population in South Africa poses a challenge for meeting targets. As the economy struggles to grow, the population dynamics change over time and increased forms of wastage creep in across government.

Increased electricity coverage across the population (especially in the remote and underserved communities) has been observed. While a lot has been done, it is not enough. Limpopo and Eastern Cape remain behind in development, even though they show higher rates of increases for services. Rapid population increases in provinces like Gauteng indicate a need for redirection of policy implementation in service delivery as the country responds to urbanisation and densification.

Increased access to refuse removal showed progress in the more urban areas, compared with other areas. The demand for the expansion of municipal infrastructure continues to exceed supply and the backlog remains high. The majority of sanitation services focus on water and waste management disposal.

While there are high levels of coverage for access to water, disparities across the provinces continue, together with the increasing demand over time. While government may be on track with servicing the underserviced, the demand exceeds the supply. Many remain behind as others move ahead.

Based on the Census 2011 results (Statistics South Africa, 2012), the usage of electricity as the main source for cooking has increased from 45% to 54% from 1996 to 2011, but the use of paraffin as the main source of energy for cooking still remains at 8% of households. The supply of electricity to all remains a challenge.

The provision of ablution and sanitation facilities remains a priority of this government. The results revealed that the use of bucket toilet facilities has been halved (from 4% in 2001 to 2% in 2011). Eight in ten households in Gauteng and Western Cape have access to flush toilets. On the contrary, much effort still needs to go into providing toilet facilities to some communities in Eastern Cape, Limpopo, Mpumalanga and KwaZulu-Natal.

The profile of households that occupied formal dwelling structures generally depicts an upward trend for all provinces. However, although Eastern Cape showed an increase in households residing in formal dwellings (from 48% in 1996 to 62% in 2011), the province still lags behind the rest of the provinces.

Trends in school enrolment (which is different from attendance and attainment) and overall educational attainment of the population have improved since 1996. While the data shows disparities across the population groups, the results show a steady increase among Africans (from 71% in 1996 to 75% in 2011).

It is heartening to note that the proportion of people who completed higher education has increased from 7% in 1996 to 12% in 2011. It is evident from the Census 2011 results (Statistics South Africa, 2012) that great strides have been made in improving the lives of many South Africans.

Access to basic services such as piped water, electricity and refuse removal has more than doubled over the period 1996 to 2011. However, much remains to be done to improve the livelihoods of South Africans further, especially in terms of significant disparities that still exist between the rich and poor. The census information provides the necessary evidence and pointers for our planning systems at small-area level to address these disparities.

Multivariate analysis identified the determinants of poverty and inequality across the population as education, employment and income. These are the factors that have influenced the observed transition in the living conditions of the population over time. They are the triple challenges that have given rise to the current structural end state of a highly poor society with high levels of inequality.

5.4 Implications of the results on the theory

Meta-theoretical reflections constitute a process of understanding how the determinants of poverty such as education, in the form of skills, employment and income distribution should be understood in the context of the current socioeconomic status of the South African population. A clear distinction between poverty, disadvantage, inequality and social exclusion is often not drawn. Measurement of poverty involves imposing a binary categorisation (poor/not poor) upon a continuous, multidimensional flux of social experience (Andy, 2011).

There are two parts to this problem: first, to define a measure of life circumstances and second, to determine whether the distribution of wellbeing is normatively salient. More generally, there are both normative and positive issues raised by the problem of poverty and inequality. Furthermore, there are social values and individual behaviour, and Loury (2000) suggests that the former warrants more attention (Loury, 2000).

Since the advent of democracy, the South African government has developed policies that focused on poverty alleviation (Triegaardt, 2007). The social security system expanded over the past few years and particularly benefited children, the old and the disabled (Van der Berg et al., 2007).

Even with all the observed gains that have been made before the recession in 2009, current data availability shows that South Africa remains one of the highest in the world in terms of income inequality. The levels of inequality can also be demonstrated through lack of access to natural resources, a two-tiered educational system, a dual health and labour system and other socioeconomic dimensions, as identified by Van der Berg et al. (2006). The same observation has been made in South Africa to date.

Economic wellbeing and income distribution are common measures of poverty and inequality traditionally based on income (Alkire et al., 2011). In the United States, from the corridors of power as defined in Washington, to protest encampments on Wall Street, economic inequality was once again at the forefront of public debate

(Kristol, 2011). The combination of rising fortunes at the upper end of the income distribution ladder, together with or alongside stagnation lower down the economic ladders can be attributable to questions from the left for actions. The main quest of the poverty analyst's questions was to redress the imbalance and punish the main factors of great wealth (Kristol, 2011). The same imbalances have been proven to exist in the South African population.

In the demographic transition and the changing age structure of the population, a country of contrasts becomes more evident in South Africa. Before 1996, South Africa had to service 10 million people very well, now there are more than 54 million people to whom basic and other services must be provided (Statistics South Africa, 2014). This shift has implications for quality and coverage of services such as electricity, water, sanitation, education and others.

Demography is important, but so is economic growth, sustainable redistribution, a leverage of private and public resources and improved efficiencies in spending by all sectors. All these elements need to be integrated into a holistic approach that will grow the economy sustainably, create jobs and ensure a safety net for the poor (Landman, 2003).

Statistics South Africa (2002a) defined the multidimensional nature of poverty as the denial of opportunities and choices regarding most basic needs, which enhance the attainment of a long, healthy, creative life and enjoyment of a decent standard of living, freedom, dignity, self-esteem and respect from others. The interest in finding sensible synthetic multidimensional poverty indices has been around for quite some time. Over the years, the quest has picked up pace, and measurement methodologies and their practical applications have blossomed.

Poverty analysts are divided among those who have suggested the use of the union and others the intersection approach to identify the multidimensional poor. In real life, this leads to not very interesting or practical results in that either too many or too few are classified as poor. A methodology for measuring poverty first identifies who is poor, then aggregates to obtain overall measures of poverty that reflect the multiple deprivations experienced by the poor (Sen, 1976).

The multidimensional poverty measures derived from applying the M_0 methodology have had the potential to fulfil desirable outcomes that are decomposable and that can include discrete and qualitative data as well as continuous and cardinal data (Lustig, 2011).

In the conventional measures of poverty, a myriad of items/dimensions (food, clothing, housing, and so on) are aggregated using market prices or, when the latter do not exist, appropriate substitutes (Lustig, 2011).

Looking into the past, present and future (judging the past by the present), with regard to poverty and inequality, it is critical to understand the role of government and civil society in ensuring access to social justice for all using the policy network approach to enhance delivery (Levy & Kpundeh, 2004). This cannot undermine the complexity and multiplicity of the interpretation of poverty and inequality.

The endogenous growth theory assumes that human capital increases individuals' capacities to produce technical change and to adapt to it (Taylor et al., 2012). The typical assumption is that research and development activities and long-term growth depend on the availability of skilled labour.

Taylor et al. (2012) argue that education levels are linked to productivity growth, as a highly skilled workforce is more able to introduce and adapt to new technology. Raising skill levels in an economy will therefore raise growth and incomes and if concentrated on the least educated, and reduce poverty and inequality (Taylor et al., 2012).

Under socialism, the priority was equality, which ended with everybody being equally poor and societies collapsing, for example Nyerere's African Socialism, the Soviet Union and countries in Eastern Europe. Under rampant growth philosophies, combating poverty is the priority. The best example of that would be present-day China, Korea, Taiwan and Malaysia (Landman, 2003).

Beyond the numbers, in the new method of analysing poverty and the critical review of theoretical contribution, the reflections constitute a process of

understanding how determinants of poverty and inequality should be contextualised within the socioeconomic status of the population in South Africa. The evidence paints a negative progress in population development in the post-apartheid period where many got left behind.

Based on the analytical empirical basis for positivism and critical realism, there is a need to adopt correct stochastic optimisation models (Wesonga, 2000) for scientifically measuring poverty and inequality. The context of measurement should be built on a proper understanding of issues around life circumstances and service delivery, mainly quality beyond access to services. Such measurement should be informed by clear distinction between poverty, inequality, discrimination, disadvantage and social exclusion.

The policy concerns around high levels of poverty and inequality have been identified, but less has been done in implementing strategies and interventions that deal with them.

More should be explored in understanding the underlying factors that have influenced poverty and inequality since 1994. These factors have been identified as educational attainment, high unemployment and income disparities across the population. Skills for the labour force were positively identified as building blocks for human capital and an expanding labour force.

Economic growth and demographic transition should be understood as the driving forces behind poverty and inequality in South Africa. The current wealth of data can be used for empirical research, attributes poverty and inequality to human capital and dual labour theories.

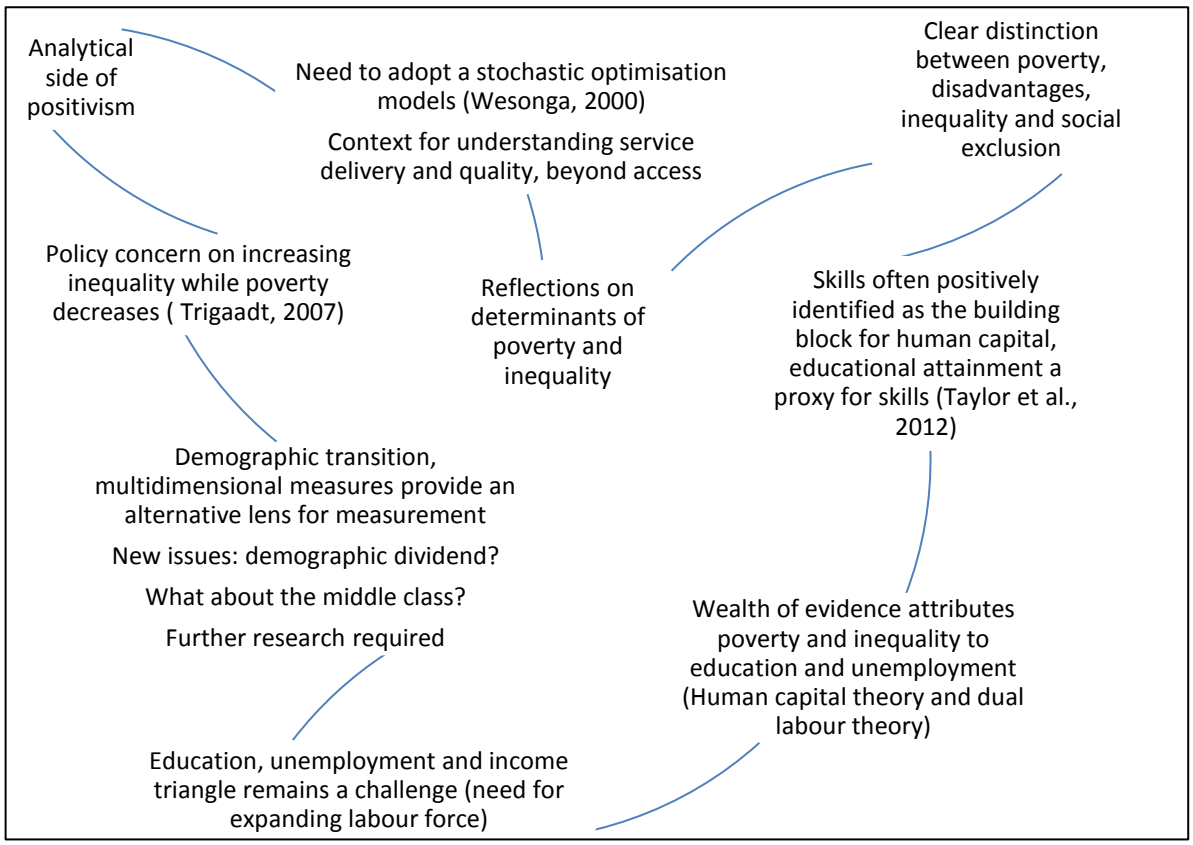


Figure 5.2: Meta-theoretical reflections

The structural poverty theory (Austin, 2006; Bradshaw, 2006) has been supported by the demographic transition and industrialisation in South Africa. Urbanisation, immigration and population growth have influenced the political decisions for policies, programmes and implementation plans for service delivery (access to water, electricity and refuse removal). The failures of implementation are related to political economic distortions (Bradshaw, 2006). Increased numbers of households and shifting targets for service delivery are evident in the data.

Urbanisations, densification of cities and labour market movements have changed the living conditions of the people across the country (Andy, 2011) for the worse, while others have progressed. Evidence points towards increased disadvantages for the African and coloured households in education and employment as well as discrimination against low-income and child-headed households in service delivery (see Chapter 4).

High-income disparities across the racial groups are elements of economic wellbeing and measures of inequality. Within the political economic distortions theory of poverty, they show rising fortunes for some and discrimination for many. Failure to implement programmes affects progress made in improving the living conditions of people, landing them in poverty (Andy, 2011).

The multidimensional nature of poverty and inequality is measured through education, employment, income, acquisition of household goods and access to basic services (water, electricity and refuse removal). These development indicators show high disparities by gender, age, race and province. In judging the past by the present, reflections point towards the importance of government in the broad human development theory, the structural theory of poverty and political economic distortions of poverty. The endogenous economic growth and human capital theory provide relations for skills and productivity.

Micro-economic returns from education, employment and earnings inform the macro-economic reforms of human development. Education is therefore central to economic growth through the evident correlations between skills and income inequality in the human capital theory. The dual labour theory is observed through Disparities in the labour market showing that employment is catalytic in escaping poverty. The relationship between education, jobs, skills match and income inequality reflect that dealing with unemployment requires a skilled labour force.

Insights from the meta-theoretical reflections at the heart of determining the factors that have influenced poverty and inequality raise major structural and future research issues. The reflections highlight the need to depart from one-dimensional traditional methods for measuring poverty and inequality.

Sound diagnosis of underlying factors for structural poverty and inequality is required in future. Many theories arise in dealing with the structural nature of poverty and inequality as more population dynamics, such as migration, are identified.

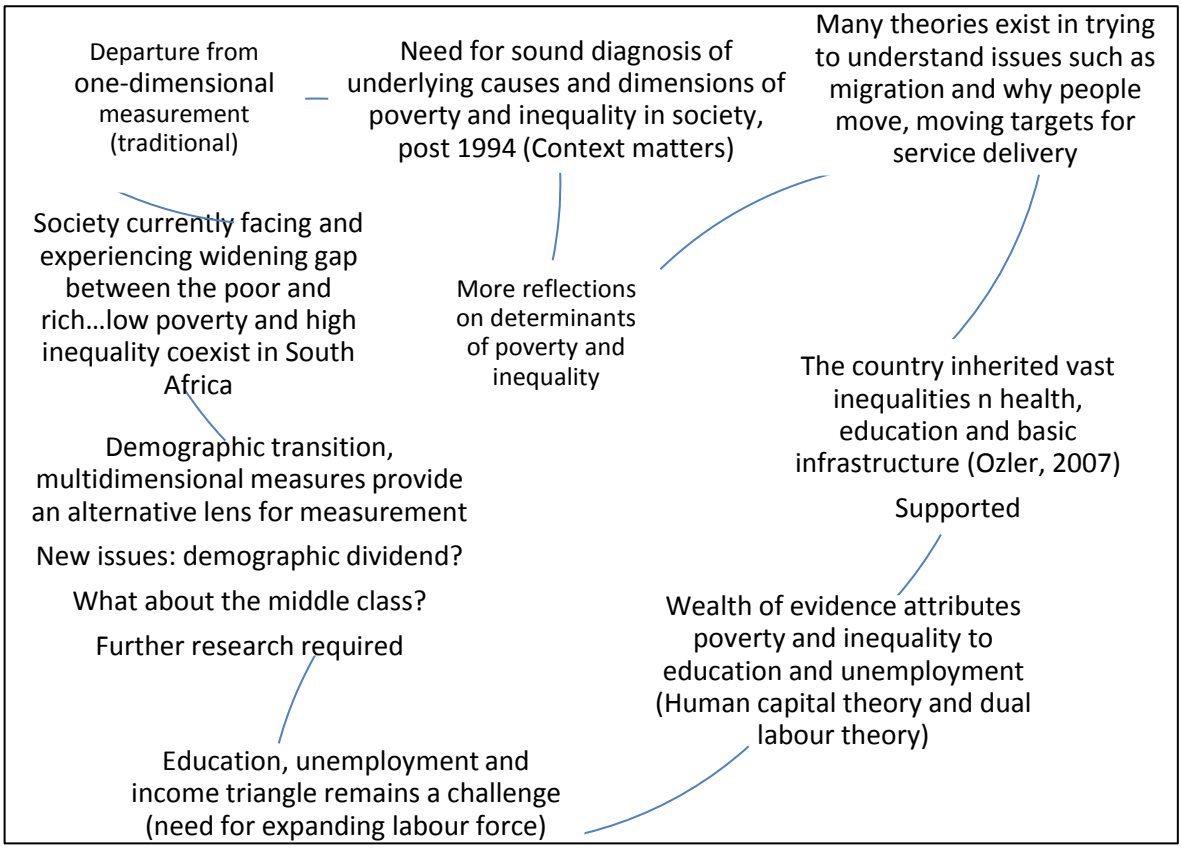


Figure 5.3: Insights from meta-theoretical reflections

Failure to reap the fruits of an emerging population dynamic, called the demographic dividend, is attributable to an economy that failed to create jobs, high youth unemployment and increased income disparities as well as dependencies on the state. The increasing middle class is the result of a widening gap between the haves and the have-nots (Van der Berg et al., 2007).

More research is required to understand another emerging population dynamic called the evolution of the middle class as an emerging population issue. Human capital and dual labour theories are more evident in the declining levels of educational attainment, increasing levels of unemployment and income disparities across the population.

The structural transition in the living conditions of the population since 1994 has resulted in high levels of poverty and inequality. Determinants of the observed structural poverty and inequality are mainly education, employment and income. In the landscape of structural poverty and inequality, individual deficiencies were observed in trends and changes in education, employment and income that show vast disparities and disparities by age and population group across the population.

Disparities in service delivery show high geographical disparities across the provinces and settlement types. Relationships and associations have been observed across the population through predictive analysis. Life circumstances have been identified as determinants of poverty and inequality while service delivery disparities paint a picture of consequences of poverty and inequality across the population.

The poor are those with lower levels of education who end up without employment and not having enough income to earn a decent livelihood. They are amongst the African and coloured population group, unemployed women and youth, those living in Eastern Cape and Limpopo and tribal areas. The poor people are mainly marginalised, disadvantaged, discriminated against and socially excluded from opportunities and access to basic service.

5.5 Implications of demographic transition on population dynamics

Many theories exist in trying to understand issues such as migration and why people move, including seeking out opportunities and the desire for a better life. Human mobility and the legacy of forced migration and the two homes syndrome among the rich and the very poor are emerging phenomena in society. Consider the role of individual choice. Not all poverty can be attributed to involuntary unemployment or to lack of earning ability. Individual choices, rational or irrational, can lead to poverty.

Some individuals who are in poverty may be making considered choices. For example, some individuals may choose leisure (not working or working very little) over cash income even though this leaves them poorer than they otherwise would be (Feldstein, 1999). In the theory, reflection comparing three explanations of class inequality and poverty as seen by Morales (2008) argues that the main observation is that our society is currently experiencing a widening gap between the rich and the poor. The evidence in this thesis supports the argument by Morales that the rich are getting richer and the poor are getting poorer, and society attests to such truth.

A society with low levels of poverty may still be unequal. Low poverty and inequality may co-exist (as is the case in South Africa today). That is one of the reasons inequality cannot simply be equated with poverty. They are different phenomena. Measuring poverty is not a straightforward matter, as it depends on critical assumptions such as the level of income that constitutes the poverty line (Landman, 2003).

High growth will certainly help to roll back the one (poverty), but it might exacerbate the other (inequality). This confronts policymakers with a brutal choice: which one receives the priority? Under socialism, the priority was equality, which ended with everybody being equally poor and societies collapsing.

Table 5.4: Structural poverty and inequality in South Africa driven by economic growth and demographic transition

Human capital	Dual labour	Political economy and competition of resources	Cumulative and circumstantial origins
Low educational levels for coloured population Highest proportion of those with the likelihood of not having some secondary education is among blacks and coloureds	Black population group dominates informal sector at 33% (individual levels of deficiencies)	High-income disparity among race groups and increasing middle class. Less probability finding whites in the income category (disadvantaged, discriminated and social exclusion)	Of the black population group, 10% have no assets, they are less likely to have household goods compared to other population groups (individual deficiencies and circumstantial origins of education and employment)
Children not attending school due to lack of money (Statistics South Africa, 2012) While there are no differences observed at lower ages for school attendance, the pattern changes as children grow Females are more likely to have no schooling and having completed primary, as compared with boys	Schooling determines entry into employment and levels of earnings. Higher probability of being employed in the informal sector if one is from traditional settlements (57%) The labour force shows 11% probability of being employed in informal sector	Low income category made up of those with lesser education two in five in the labour force have no income, this is more than 25% unemployment rate	Levels of education for the head of household determine the ability to acquire goods Male-headed households are three times more likely to have all household items
Universal school attendance is likely to be reached, with 96% of 6-year-olds being enrolled, but by age of 16, only 90% of children are still in school while at age 18, proportion of those who are still in school drops to 66% Fewer individuals above 24 years attending school The older the person, the less likely they are to attend school	Female headed household are 41% more likely to be in informal sector, compared to male counterparts at 22% Of the females, 58% are in informal employment compared to 77% males	Males have a six times probability of having higher income than women, and are 2.8 times more likely to earn between R1,601 and R12,800 Males earn more income across all income categories (Competing resources, social forces, cultural behaviour, organisation of relation, vulnerability and discrimination)	Households headed by young people had lower probability of ownership of assets The older the household head, the more likely the household would have all household goods Vast disparities across provinces in relation to ownership of household goods
Lowest levels of school attendance are in Northern Cape Highest proportions of School attendance are in Mpumalanga Higher school attendance in rural compared to urban areas	Highest levels of unemployment among youth aged 15 to 35 years Of the people aged 15 to 24 years, 49% remain in long-term unemployment, followed by 28% of 25 to 34-year-olds This makes 77% of young people between 15 and 34 years	Incomplete secondary is largest determinant for not having income Those in the age group 40 to 44 years are more likely to have higher income Half report no income Gauteng and Western Cape showed bigger likelihood of individuals with high income Geographical disparities Individual deficiencies	

Table 5.5: Service delivery disparities across the population relate more to political economic distortions

	Access to water	Access to electricity	Refuse removal
GEOGRAPHICAL DISPARITIES	While formal dwellings experience good quality water (93%), 48% of traditional dwellings have bad quality Observation among black population group 61% have good water quality The worse the service, the more the incidence among female-headed households (83%)	High coverage of access to electricity Cooking at 67% Heating at 59% Many still waiting Female headed household lagging behind	60% coverage of refuse removal by local authorities 30% own disposal and 10% have no refuse disposal
	Quality of good water has been scored at 68% Lowest levels of access to water observed in Eastern Cape While access to water has been estimated at 90%, only 62% of the households rate the quality of water as good	Highest level of electricity access is observed in Western Cape and Gauteng Highest increase has been observed in Limpopo and Free State	Lowest levels of refuse removal in Limpopo Increased coverage in North West and Free State

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

This chapter provides the conclusions of the study, policy implications, context of the role of government, recommendations and propositions for future poverty and inequality measurement in South Africa. The country struggles to address poverty and inequality, partly due to a lack of understanding of how levels of education, employment, household income, acquisition of assets (household goods) as well as access to services manifest themselves across the population. This was concluded from both the objectives to interrogate and investigate the predictors of life circumstances and service delivery since 1994.

The ultimate goal of the study is to shed light on the factors underpinning life circumstances and service delivery and to attribute changes in poverty and inequality to the performance of government.

The results show that education and unemployment contribution highly to poverty and inequality, and service delivery is a result rather than a determinant thereof.

Service delivery disparities result as a failure by government to provide services across the entire population.

The study highlights the importance of using the selected indicators for life circumstances and service delivery into a descriptive model for an expanded measurement of poverty and inequality.

It is important to promote use of development indicators to understand how poverty and inequality manifest themselves across the population beyond the use of financial approaches for measuring poverty and inequality.

Both objectives of the study were attained and the three research questions were answered.

6.1 Contribution of the study

This study contributes to the measurement of progress made in improving the livelihoods of South Africans using basic indicators of life circumstances and service delivery. The development indicators (education, employment, household income, acquisition of household goods and access to basic services) are used to interrogate the determinants and investigate the predictors of poverty and inequality in the South African population since 1994.

The scope of this thesis is broad as it is informed by a multi-theoretical framework, multidimensional approach to measuring poverty and inequality using a multivariate analytical framework. The thesis responds to the need for outcome measures of poverty and inequality and enhanced statistical methods for measurement of the two concepts.

The study aims to improve on the statistical methods for integrated analytical approaches for poverty and inequality. Datasets such as Census 1996, 2001 and 2011 (Statistics South Africa, 1998a; 2004; 2012a) as well as the household surveys 2002–2011 (Statistics South Africa, 2012c) were used for descriptive analysis. The wealth of data currently available in the country should be mined for in-depth analysis of poverty and inequality in South Africa in the future.

The history of South Africa has shown high levels of poverty and a widening gap between the poor and non-poor using the Gini coefficient (Van der Berg et al., 2007). The World Bank study published in 2014 indicated improvements in the Gini coefficient of South Africa.

The aim of this research was to provide new knowledge, to enhance the debate and contribute to the knowledge base that exists around poverty and inequality in South Africa in the post-apartheid era. The study deals with the methodological knowledge gap using alternative integrated statistical analysis for poverty and inequality. This methodology promotes the use of integrated analytical models for understanding correlations, not causality in relation to determinants of poverty and inequality.

There is more evidence in the form of available data on poverty and inequality in South Africa to date. Most recent data comes from the NIDS 2012 (Leibbrandt & Woolard, 2012), Census 2011, and Income and Expenditure Surveys 2005–2011 (Statistics South Africa 2012a, 2012b). A lot of analytical work has perpetuated disagreements on the state of poverty and inequality in South Africa, especially in relation to government performance.

In line with the contribution of this study on multidimensional measurement of poverty, Ozler (2007), Van der Berg et al. (2007), and Woolard and Leibbrandt (2006) have argued for a broadened analysis of poverty and inequality beyond income.

6.2 Policy implications

In line with the theoretical account of the research using the multi-theoretical approach, major policy implications arise from the thesis. Of main importance is the understanding that poverty is complex. This indicates that in the context of the positivistic and critical realism research approaches, a lack of attention to data collection methods exists. More studies are essential to unpack social issues in an interpretative theory.

An observation that increasing educational enrolment does not simply translate into educational attainment should be emphasised, accepting that marginalisation continues across the population. This research finds that school dropout levels at age 16 are becoming more prevalent.

The country should respond to developmental challenges and take care of the discriminated and disadvantaged. The evidence shows that the social security net has expanded in the recent years, but this may not be a sustainable solution to poverty and inequality manifestations, especially starting with youth unemployment.

The basis of the human capital theory is that education makes people more productive at work. Education acts as a filter that identifies more able workers

rather than enhancing productivity directly (Taylor et al., 2012). A critical question for educational challenges in the country remains: why are so many young people not in school? There is a need to give attention to literacy as a more proximate indicator of human capital acquisition (Lloyd & Hewett, 2009).

For the country to address macro-issues such as economic growth for better lives as well as poverty and inequality reduction, basic blocks for understanding the population dynamics should be in place. Research on the economic growth, poverty and inequality nexus should inform what the future holds. This can be understood through determination of how education, service delivery, employment, income and acquisition of household goods have affected the livelihoods of the people over the past 20 years.

The initiative taken by the Century Foundation to explore new approaches to controversial issues such as welfare, housing, immigration, antidiscrimination and other social policies can be a good initiative for South Africa in the poverty and inequality discourse, policy analysis and review in future (Benschop, 2012).

Government departments dealing with education, health, social development and women's affairs should coordinate their work. A clear distinction between poverty, disadvantage, inequality and social exclusion is often not drawn. This culminates in a waste of resources and formulation of inappropriate policies.

A new body of knowledge has been advanced in this thesis around how education, employment and income are the cornerstones for policy discourse around poverty and inequality in South Africa in the post-apartheid era. Poverty and inequality research should model the likely impact of the changing distribution of skills on income inequality and poverty in the country. This was a recommendation by Taylor et al. (2012) for the United Kingdom. One approach is to directly model the probability of individuals being in poverty and use the results to simulate poverty rates given the new distribution of skills.

The evidence reviewed by Taylor et al. (2012) indicates that to project the impact of a changing distribution of skills on income inequality and poverty requires

accurately identifying the impact of skills on employment and earnings. This is conditional on employment, adjusting for the effect of other characteristics of individuals, adjusting for unobserved personality characteristics (such as motivation and ability), incorporating the costs of acquiring skills, and incorporating the changing supply of qualifications.

This model is one that South Africa can definitely learn from as the country continues to struggle with the issues of poverty and inequality. To accurately project the impact of changing skills on income inequality and poverty requires information on individuals' skill level and educational attainment, individuals' income by source so that the country can separately identify labour market earnings, investment income and benefit income (not excluding the individuals' employment status and household composition).

The model will allow policymakers and researchers to aggregate individual income within their household and construct a measure of household income on which to assess income inequality and poverty. The review of theories and evidence indicates that to accurately estimate the impact of skills and qualifications on employment and earnings requires information on other individuals and family background characteristics that influence employment and earnings as well as the distribution of skills in the labour market more generally (Taylor et al., 2012).

There is a wealth of data and information in South Africa to adopt the abovementioned model. Data from the General Household Surveys, Quarterly Labour Force Surveys, Income and Expenditure Surveys, censuses and other sources can be used to ensure that the country can account for the interactions between earnings, income and the tax-benefit system. Skills, qualifications and earnings relate to individuals, but poverty and income inequality are typically measured at household level and so are influenced by household compositions and unobserved personality characteristics (such as motivation and inherent ability), which may be associated with educational attainment, employment and earnings, and if ignored, result in exaggerating the role of skills.

The country has failed to address poverty and inequality due to a lack of understanding how levels of education, employment, household income, acquisition of assets (household goods) and well as access to services manifest themselves across the population.

Poverty and inequality measurements have not been done in an integrated manner that shows the multidimensional nature of poverty as a phenomenon in South Africa. This multiplicity of understanding and interpretation of issues has created the gap in addressing poverty and inequality, and to restore the dignity and safety of the citizens.

Socioeconomic indicators such as the determinants of poverty and inequality, and how they manifested themselves across the population, have seldom been used as building blocks for poverty and inequality analysis.

New programmes were put in place to improve the quality of life of all people of South Africa. Measurement of poverty and inequality has been a contested issue over time as in many cases it is done without identifying the underlying factors or determinants. There is a gap in defining multidimensional determinants that influence poverty levels and understanding how they play themselves against each other to give a comprehensive picture of poverty.

This thesis provides an analysis of poverty and inequality from the onset of democracy, using the indicators to measure life circumstances and access to service delivery as two broad pillars of the analytical framework. A critical analysis was made on the progress of government in implementing policies aimed at improving the lives of the population. These include policies around education, income distribution, employment and access to basic services.

The Government-Wide Monitoring and Evaluation System, set up by the Presidency (2005b), has a set of development indicators which government has used to measure its progress on a yearly basis since 2007.

The 2005 framework (The Presidency, 2005a) was the first step by government towards developing indicators and the use of such indicators in measuring the performance of the state as part of the mid-term review process in 2009 and the second decade of freedom in 2014. Since 2009, the Presidency has had 'monitoring and evaluation' as well as the 'planning' ministries.

These two ministries are still providing analysis of poverty and inequality issues in a piecemeal approach, dealing with individual variables and indicators separately. Poverty is a multidimensional phenomenon, hence its measurement poses many theoretical and policy challenges. A number of international efforts have been made to tackle the problem.

The United Nations Commission for Statistics has developed a Human Development Index, which takes into account economic growth, literacy level and life expectancy as key variables. The Millennium Development Goals also focus on poverty by using $1 (PPP) per day as cut-off income/expenditure under which persons are considered.

In line with the emerging issues for data revolution and access to big data, South Africa has seen an evolution of data analysis for poverty measurement since 2000, using different large survey datasets from Statistics South Africa such as the General Household Survey, the Labour Force Survey and the Income and Expenditure Survey (Statistics South Africa, 2004; 2007; 2008a).

Poverty analysis has been evident in the publications by, among others, Bhorat and Kanbur (2006), May (1998), Meth (2007), The Studies in Poverty and Inequality Institute (2007), Van der Berg (2002) and Woolard and Leibbrandt (2006). The explosion was fuelled by a lot of ignorance about the relationship between poverty, inequality and politics.

The measurement of poverty and inequality should be informed by the micro-picture of development in the country. Building blocks for such measurement should be based on the understanding of how socioeconomic indicators such as education, employment, income, assets and services play themselves against

each other and across the population groups before measuring the outcome level indicators such as poverty and inequality.

In terms of international relations policies, South Africa participates in international comparisons related to the country's development profile for many reasons, for instance, reporting on the Millennium Development Goals, economic investment decisions, development assistance and peer-review processes such as the African Peer Review Mechanism. It has always been difficult to tell a story of poverty and inequality without political overriding.

Poverty and inequality debates have been overridden by confusion in terms, measuring the two phenomena mainly in economic aggregate terms inconsiderate of implications for social transformation.

Population dynamics have far-reaching implications in terms of socioeconomic, political and social development, globally. They are mainly driven by levels of fertility, mortality and migration (both international and internal). Both fertility and mortality rates have decreased while internal migration has been accelerated, particularly from other provinces to Western Cape and Gauteng.

South Africa is also a signatory to many international agreements, which aim at improving socioeconomic status, such as the Millennium Development Goals of the various countries. The data collected in censuses, surveys and administrative systems provides a pivotal contribution in this regard.

It is critical for the research environment and fact-finding agencies to promote better understanding of population dynamics and discourse on demographics for South Africa. Context matters and engagements on the issues of poverty and inequality should be promoted as data provides for national responsiveness.

In the poverty and inequality discourse, the two terms should be understood as different and distinct phenomena that co-exist. Therefore, the interventions for the two should also be fundamentally different.

Analysis in the areas of poverty and inequality measurement should also ensure the understanding that correlation cannot be confused for causality. A better understanding of interrelations across the population, as informed by the wealth of data in South Africa today, remains critical for human development, which is important in the development equation.

In dealing with understanding the state of poverty and inequality, there should be interventions for the reconstruction of society. The dialogue on poverty and inequality cannot simply look at data but should promote a better understanding of social consequences and human development. This study provides an understanding of where the country comes from, and what is emerging from the main sectors of education, the labour market and the economy is shaping the state of poverty and inequality in South Africa in the post-apartheid era.

Major categories emerging from the study contributing to the current knowledge are that the education sector is not producing required skills; the labour force continues to be embattled with structural problems of skills mismatch; income and assets acquisition disparities perpetuate inequality levels; and access to service delivery is improving, but quality remains a challenge.

Meta-theoretical reflections are aligned with the major reflections above. A matrix of meta-theoretical reflections and major analytical reflections arising from the analysis is critical to provide an understanding for poverty and inequality. While many have managed to progress in the post-apartheid era, many others remained behind.

The role of government in poverty and inequality has been raised as a priority in the development agenda of South Africa. Twenty years into democracy, there is evidence that can explain poverty and inequality in the country as well as results that shed light on policy areas for development. The data collected in population censuses and surveys since 1996 (Statistics South Africa, 1996; 1998a; 1998b; 2002a; 2002b; 2004; 2007; 2008a; 2012a; 2012b; 2012c; 2012; 2012e) has provided useful insights into this development agenda.

6.3 Context of the role of government

Although the government has formulated good policies, the implementation of these policies has lagged behind. The current facts and empirical research should sharpen the ability of government to review the political economy and implement better policies. The facts will frame the policy objectives as raised by the National Development Plan and Vision 2030 (The Presidency, 2011), in the main addressing poverty, inequality and unemployment.

The role of government in tackling the high levels of poverty and inequality has been raised as a priority in the development agenda of South Africa (The Presidency, 2014). While evidence shows that the social security net has expanded in the recent years, this may not be a sustainable solution to poverty and inequality manifestations, especially starting with the high youth unemployment.

The issues related to education are attributable to the emergence of the human capital theory. This thesis supports the argument by Taylor et al. (2012) that education makes people more productive at work. A critical question for educational challenges in the country remains: why are so many young people not in school?

For improvements to be made in the education sector there is a need to give attention to literacy as a more proximate indicator of human capital acquisition (Lloyd & Hewett, 2009). Individuals invest their time and money in education and skills on the expectation that such investments will yield future benefits in terms of employment and earnings.

If the only cost of an additional year of education is the opportunity cost of the students' time and if the proportional increase in earnings caused by this additional education is constant over an individual's lifetime, then the rate of return on investment in education can be derived from estimating relatively simple econometric models.

Social theory evolution remains critical for the development trajectory of the country and the first steps lie in the levels of education to build a productive labour force. Money remains the main problem for lack of school attendance. While the South African education department may be indicating a high level of education as an outcome, this is coupled with low literacy levels and high enrolment (lowest maths and English literacy) according to international standards (Dieltiens & Meny-Gilbert, 2009).

A lot remains to be done to improve education in South Africa. Of great importance is the ability of the country to differentiate between coverage and quality in the education sector.

The outputs of the education sector are riddled with a high dropout effect, which results in social exclusion for those who do not make it through the education system. School dropout is a warning light and the main reflection should be on the implications of poverty as well as how these may be attributed to the evidently widening levels of inequality across the population. The assumption is that raising education and skills is crucial in ensuring future economic prosperity (Taylor et al., 2012). It has been documented that countries with high levels of education and skills have on average high levels of productivity and economic growth.

Although skills can affect income and poverty in a number of ways, they are likely to have their biggest impact through their relationship with employment and earnings. As well as the labour market impact, more highly skilled individuals may better understand the social security system and be more aware of both their entitlement to benefits and how to claim them. They may also be more able to manage their finances efficiently and so avoid problems associated with over-indebtedness.

It is clear that inadequate schooling can limit an individual's earning ability, and the obvious remedy is more schooling or better schooling. Many economists (Bhorat, 2006; Leibbrandt et al., 2010; May, 2008; Meth, 2006; Simkins, 2004; Woolard, 2002) and educators who are studying how to improve South African educational system have concluded that decentralisation and competition is essential. A

second reason for low earnings ability is inadequate training. Experience suggests that on-the-job training is best (Feldstein, 1999).

Government departments dealing with education, health, social development and women's affairs do not coordinate their work, and that outside the national department, gender and education policy is not shared, discussed or acted on with a strategic understanding of how change in gendered relations of education might come about. What forms of participation exist for policy discussion are controlled or regulated, making engagements with power difficult and undermining a politics of accountability (Unterhalter, Dieltiens, Karlsson, Letsatsi, Makinda, North, Onsongo & Yates, 2010).

Government has failed to attain the objective of a non-racial, non-sexist and equal society since 1994. For this objective to be attained, educational prospects of the labour force should improve, more people should be able to get employed and more individuals should be able to have enough income to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect from others (Statistics South Africa, 2002; 2006a).

Everatt (2003), Meth (2006) and Ruiters and Bond (1996) have a view that the myth of good performance of the state must be debunked, while Bhorat (2006), May (2008), Simkins (2004), Van der Berg (2002) and Woolard (2001) have raised the challenges of contextualisation, measurement and difficulty of definition, measurement interpretation and data issues.

The importance of a deepened understanding of the role, capacity and organisation of the state in dealing with the poverty and inequality outcomes has been argued for by Levy and Kpundeh (2004). The complexity of human development and progress made in improving the livelihoods of people in the country have a bearing on how far the country has come. Remnants of the past, mainly the apartheid system, cannot be discounted in attributing the current struggles in dealing with the state of poverty and inequality across the population in South Africa.

Bhorat et al. (2007) have raised concerns about the quality of data, which has now improved. Their argument was that while the outcomes in relation to social indicators are encouraging, poverty and inequality outcomes are bad. Meth and Dias (2004) remain unconvinced of the manner in which performance of the state has been portrayed over the years. They raised issues of misguided interpretation close to 'singing the master's tune'.

Levy and Kpundeh (2004) have argued that South Africa is no exception to the challenge of capacity building for states to deliver. He raised a point that the process of building the capacity of African states has been at the top of the continent's development agenda. Major issues such as reducing poverty and forging productive partnerships with donors and investors depend critically on strong public capacity to formulate policies, build consensus, implement reform and monitor results, learn lessons and adapt (Levy & Kpundeh, 2004). These remain at the heart of African development. While poverty and inequality remain the outcome indicators to be reduced in the country, they do not exist in isolation.

6.4 Concluding remarks

Poverty and inequality pose many development challenges for many countries, developed and developing. The causes are diverse and unique in some countries. Various governments (including South Africa) and international agencies have endeavoured to formulate policies aimed at eradicating the negative impacts of the above problems. The need for evidence-based planning and decision-making, as well as the strong emphasis placed by government on the monitoring and evaluation of programme outcomes and impacts is of importance.

The main driver of inequality currently in South Africa is no longer the black/white divide, but rather the intra-group divide between the rich and the poor within various population groups. Job creation should be put at the centre of global efforts to halve extreme poverty by 2015 (Landman, 2003).

Since 1994, the South African government has formulated appropriate policies aimed at improving the living standards of the people. The RDP focused on issues pertaining to health, education and employment as highlighted in the conceptual framework. GEAR brought on board the issues related to income inequalities and ASGISA emphasised the need to accelerate economic growth. The National Development Plan 2030 has also included these priorities. However, the implementation of these policies has not been well done in spite of the enormous financial resources that have been availed over time. This inability to effectively implement pertinent programmes has led to the poor outcomes underscored in this study.

Education has been identified as a powerful enabler (philosophically and pragmatically) of socioeconomic development. It provides individuals and societies at large with the skills and knowledge required to interact socially and politically in the decision-making processes that shape their lives. The findings of this study have shown that South Africa has continued to invest in the provision of education opportunities to eligible individuals, particularly at the mandatory ages between 6 and 15 years. The proportions of children enrolled at these ages are almost universal.

The biggest challenge has been low enrolment rates at higher ages, completing particularly a tertiary level; hence, the proportion that has attained higher levels of education is still low. This low attainment has negatively affected the employment status of many South Africans. This has also been compounded by a mismatch between the quality of education received and the requirements in the market. This has resulted in high unemployment rates over the entire study period, 1994 to 2007.

The disparities in educational attainment still exist as far as population groups, gender and geographic types are concerned. Africans and coloureds, females and those residing in tribal and informal urban areas have been disadvantaged. Hence, although positive trends have been noted, there is a lot required to achieve the desired equality across the board.

Access to employment opportunities has been identified as another enabler for socioeconomic advancement at all levels of development: national, societal and individual, due to its linkage to enhancement of productivity and acquisition of income. The findings indicate that this process is still marred by many challenges. The proportion of the labour force that is gainfully employed is stubbornly low.

Significant proportions (about 16%) of those who are working are engaged in informal activities where the earnings are too low to meet their basic needs. The link between the formal sector and informal sector has still not been attained.

The findings pertaining to income distribution indicate that minimal success has been achieved to reduce the gap between the poor and the rich as reflected by the high figures of the Gini coefficient. The majority of the individuals aged 15 to 65 years (almost 69%) had annual incomes of less than R1,601. This implies that the poverty and inequality challenge is still to be resolved.

The indicators pertaining to the provision of basic services (water, electricity and sanitation) indicate that tremendous progress has been made in this regard. This has ensured that poor communities have access to these basic services. However, there are some disparities between male- and female-headed households, population groups, provinces and geographic types, which demand attention. Female-headed households, Africans and coloureds, poor provinces such as Eastern Cape and Limpopo, and rural areas are disadvantaged.

Another important dimension that needs to be highlighted is the demographic transition. The last three censuses have provided useful insights into the underlying determinants of the increase in the population size and structure. The key drivers have been high fertility in the period preceding 1994 and a decrease in mortality rates. These trends are envisaged to continue in future.

South Africa's population is currently projected to increase to 54 million by 2025 and to 57 million by 2050 (Statistics South Africa, 2014). This increase will compound the challenges posed by rapid urbanisation, the increase in the number of households that require basic services and an aging population.

In conclusion, the findings show that although the living conditions of the people of South Africa are slightly better than what was inherited from the apartheid era, the eradication of poverty and inequality remains a major challenge. It is therefore of paramount importance that concerted efforts be embarked on to review and redevelop the policies and programmes that can address the above challenges.

The data indicates that there are shortcomings in the understanding of poverty and inequality in South Africa since 1994. This has been coupled with the unavailability of quality data over time. The data does indicate that the dynamics of observed change can be associated with the topic under review 'identifying the key determinants of poverty and inequality in South Africa since 1994'. This calls for continuous reflections in the policy discourse.

The complexity of poverty and inequality phenomena has shown itself in the complexity of this study. The struggle to understand the relationship between poverty, inequality and development theory continues. Disparate patterns have been observed in the population development, demographic transition and economic development in South Africa.

Positivism and critical realism are highlighted in this study for unpacking the key theoretical determinants of poverty and inequality. Of interest are the theories of the emerging middle class premised on an economic development trajectory over the years. From the analysis, using positivistic and critical realism approach, the key determinants are education, employment and income disparities.

In retrospect, it is difficult to talk about poverty and inequality without talking about human development and social exclusion. This will shape the further evolution of social and human development theories for the future of South Africa.

This study has a discovery of basic development discourse and highlights the need for further possibilities of theorising poverty and inequality. With the wealth of data currently available, there are possibilities for new theoretical contributions to knowledge in the area of poverty and inequality. This calls for further embrace of qualitative dimensions and statistical correlations as well as causality or impact

studies to inform the measuring of government's performance in dealing with poverty and inequality.

Measurement of poverty involves imposing a binary categorisation (poor/not poor) upon a continuous, multidimensional flux of social experience (Loury, 2000). The human capital theory implies that an effective anti-poverty strategy should incorporate increasing the skills of people in poor (low-income) households as this will increase their productivity and suitability for paid employment and career advancement within employment.

The evidence in this research also points to the fact that the country has underestimated the legacy of apartheid as a social challenge. From the evidence gathered, it is not a bad thing to have bad numbers. The unpalatable results in development should be used as evidence to promote and push for innovation in the country.

Of importance is the concept of the capability approach and self-worth in dealing with the major challenge of youth unemployment. Rich evidence based on figures for unemployment should be used for evidence-based decision-making in the country, promoting better communication of the state of the population on employment.

It has become ever more apparent that in order to take account of normal distribution in earnings, of changing demographics and economic mobility (both up and down), the distribution of lifetime earnings would give a far more valid report than any cross-sectional survey at a moment in time.

The challenge is that economists have not come up with any accepted procedure for measuring any such distribution of lifetime earnings, and there are even some grounds for thinking that they never will (Kristol, 2011). A second reason for low earnings ability is inadequate training. Experience suggests that on-the-job training is best (Feldstein, 1999).

The country needs more targeted interventions into accelerating the delivery of quality education opportunities to ensure that the eligible population has access to higher levels of education, since educational attainment is one of the critical factors that enhance the living conditions of the population. Employment levels remain the cornerstone enabling households and individuals to access better living conditions. Access to services has remained a challenge for the households in South Africa, notwithstanding the quality thereof (Van der Berg et al., 2006).

Education remains the primary determinant of poverty and inequality. Many youth leave education and ultimately remain trapped in unemployment. The first issue, teenage pregnancy, within the context that a small proportion (up to 15%) are affected by this challenge.

The second issue, young people having to take care of some family members. These two issues were raised as the main reasons why many young people leave school. Education remains a commodity for people to develop. Patterns of migration within the country need to be further examined to ensure a proper understanding of the impact of the movement of people on development in the country.

The high proportions of people out of school and out of work show no positive developmental trajectory for the country over the past 20 years.

Income disparities observed are attributable to high levels of inequality as measured by income, across the South African population. While there has been an increase in the average household income, the disparities remain vast across sex and population groups. It has been observed that the rate of increase in average household income is higher among African households as compared to other population groups (Statistics South Africa, 2012c).

Service delivery coverage is high, but more remains to be done, as the quality of services remains questionable.

Looking at the methodological aspects of poverty and inequality measurement, a proper model for understanding the living conditions of the poor, which is different from their economic wellbeing, should be developed to guide work around the poverty measurement area. Taylor et al. (2012) have argued that a number of theories deal with the relationships between skills, employment and earnings.

Poverty has declined slowly while inequality has widened (Van der Berg et al., 2007), as supported by recent data from Census 2011, General Household Surveys 2002–2011 and the Income and Expenditure Survey 2010/11 (Statistics South Africa, 2012b; 2012c).

Poverty is still a critical threat that South Africa faces; however, a lack of consensus in understanding and measuring poverty is a manifestation in the development of a democratic, prosperous society. This is based on the changes of heart among those in power, the ruling party (Everatt, 2009). While poverty and inequality remain the outcome indicators to be reduced in the country, they do not exist in isolation. The relationships between poverty, inequality and life circumstances as well as service delivery indicators remain at the centre of this thesis.

Backlog and quality of education, employment (structure of the labour market) and earnings (income dynamics), household income distribution, and the ability of households to acquire goods and access to basic services show vast disparities across the nation. Educational attainment, employment and income distribution have shown disparities that contribute to the ultimate levels of poverty and inequality. The history of how poverty has been measured over time has formed the basis for this study.

Although the national Gini coefficient figure is under 1%, among African households, it moved up from 0.49 in 1970 to 0.59 in 2000. Among whites, it moved from 0.43 to 0.49, among Indians/Asians from 0.42 to 0.51 and among coloureds 0.53 to 0.55 (Van der Berg, 2002). This intra-African profile is understandable, given the concerted efforts to transform the ownership and personnel structures of the economy.

Data availability has always been a challenge for the measurement and monitoring of poverty and inequality in South Africa. The study highlights the dilemma faced by the research fraternity in relation to defining, monitoring and measuring poverty and inequality over time. In order to understand changes in the social structure of society, a number of factors need to be taken into account (Lanjouw, 1997).

Poverty measures are used primarily to monitor social and economic conditions and to provide benchmarks of progress or failure. The first question in judging measures is how well each index reflects basic properties desirable on philosophical grounds (David & Maligalig, 2001).

South Africa has a long way to go in addressing an integrated method for poverty analysis and agreeing on the definition of poverty, which is holding up progress in this regard. This work will contribute to reaching further agreements about the measurement of poverty and its importance in the construction and evaluation of effective policies and interventions. While progress has been made with poverty reduction, inequality is worsening.

The goal of transforming the ownership and composition of the economy to reflect the country's demographics more accurately will inevitably entail a worsening of the Gini coefficient within the African community itself, while poverty and inequality will respond to growth. High growth will certainly help to roll back the one (poverty), but it might exacerbate the other (inequality). This confronts policymakers with a brutal choice: which one receives priority?

The results continue to point towards high but declining levels of poverty, while the difference between the haves and the have-nots continues to increase. High levels of unemployment, income poverty, and income inequality all relate to economic growth and performance of government. The change has not been positive at all levels. Previously, numbers have been thrown at issues and issues thrown at numbers without factual methods and evidence that can stand the test of time. The findings from the research conducted by Ozler (2007) indicate that, as many progress and attain better lives, many remain behind.

While it is regarded by many as an upper middle-income country, evidence shows that the country does not merely conform to the definition when measuring poverty and inequality. There is a consensus among most economic and political analysts that more than 40% of South Africans are living in poverty (Ozler, 2007).

The failure of the economy to grow and create enough jobs gave way to an interrogation of the compatibility between GEAR and the labour legislation, and a growing concern with rising unemployment and poverty.

The current state of affairs based on empirical evidence means that there is more to be done as the negatives outweigh the positives in the implementation of service delivery programmes (The Presidency, 2004). Inequality among the African population increased significantly. Even among the subgroups of the population that experienced healthy consumption growth, such as coloureds or Western Cape, the rate of poverty reduction was low because the distributional shifts were not pro-poor (Ozler, 2007).

For the country to address macro-issues such as economic growth for better lives as well as poverty and inequality reduction, basic blocks for understanding the population dynamics should be in place. On the growth, poverty and inequality nexus, what does the future hold? This critical question can be understood through determination of how education, service delivery, employment, income and acquisition of household goods have affected the livelihoods of the people over the past 20 years.

Persistent structural unemployment has been attributed to a skills mismatch in the wealth of evidence currently available in South Africa as well as by international standards. Dealing with high levels of unemployment demands skilling of the labour force and reducing unmatched skills for economic development in a modern economy. Labour market earnings are one of the main components of personal and household incomes and so, being out of work or in unstable low-paid employment has implications for the experience of poverty and low income.

Empirical evidence paints a bleak picture of the South African population, where many are not working, are less educated, have low-paying jobs, experience income disparities and declining acquisition of household goods. While some are progressing, many remain behind.

As a contribution to the current level of knowledge and assessing the existing information that is relevant today, the research demonstrates the wealth of data available for the discourse on poverty and inequality.

Furthermore, the research provided the ground-breaking patterns of evidence that can be used for policy review and formulation from the understanding that poverty is a complex business. It dealt with arguments, contested and uncontested, evidence from literature and research, which were used as stepping stones. The research highlighted that complex theoretical and conceptual approaches to measuring poverty and inequality still have a long way to go in South Africa.

This study brings a contribution to the poverty and inequality discourse, focusing on improved livelihoods, service delivery, maturing democracy, accountability and confidence of the citizenry. It further contributes to the broader understanding of the complexity of poverty and inequality measurement dealing with social theory, variations on definitions, complexity theory and capacity building theory within the broad development theory.

It provides a new way of thinking around poverty and inequality measurement, enhancing the debate on poverty and inequality in the post-apartheid era through a statistics notion of mixed methods. Future understanding of poverty and inequality in the context of political economy, social capital, circuits of power and social contract were introduced in this research, which also suggested future angles to explore.

Having identified education, employment and income as determinants of poverty and inequality since 1994, more needs to be done to achieve social transformation in South Africa. The results show that the vast majority of the population remained behind when development occurred in the country. The poor remained

disadvantaged, discriminated against and marginalised when another proportion of the population advanced in development since 1994. Judging the past by the present, the trajectory of population development has shown negative trends based on increasing levels of inequality related to disparities in opportunities for education, employment and income.

6.5 Recommendations

After 20 years of democracy, the country's performance should be benchmarked against attaining the broad goals of development in relation to life circumstances and service delivery in the post-apartheid era. The country cannot improve potential if government does not measure it appropriately. Thinking in the future and looking back (judging the past by the future) should be embracing the full potential for measurement in the living conditions of the population, poverty and inequality.

Improving the living conditions in South Africa should be evaluated in 2030, as stipulated in the National Development Plan. Dealing with development of indices for measurement remains a critical exploratory area in which Deaton (2001) has done a lot of research, specifically poverty and inequality indicators. He clearly specifies the importance of employment. If the head of the household is employed, there are better prospects for the living conditions of a household.

The importance of education indicates that the level of education has a bearing on the living conditions of persons and households. Statistics tell stories of daily survival of people and households. Education is a great deliverer of the quality of life in South Africa, how do we change the quality of education for long-term outcomes in future? Low poverty and inequality currently co-exist in South Africa. That is one of the reasons inequality cannot simply be equated to poverty. The current state of affairs can only mean that there is more to be done, as the negatives outweigh the positives in the implementation of socioeconomic programmes. Inequality among the African population increased significantly. Even among the subgroups of the population that experienced healthy consumption

growth, such as coloureds or the Western Cape, the rate of poverty reduction was low because the distributional shifts were not pro-poor (Ozler, 2007).

The use of statistics in poverty and service delivery analysis is critical to ensure plausible results to inform the debate. This research aimed to engage with the poverty and inequality discourse as South Africa moves towards measuring its performance in attaining the Millennium Development Goals in 2015 and assessing development during the second decade of freedom in 2014.

While the research may agree with the findings and observations in the previous studies, caution must be applied when dealing with the use of indicators as measures for the performance of government. Models are based on assumptions and these are required to be clear when findings on indicators are communicated.

Use of descriptive, integrative and predictive analytical methods in this study should be emphasised and considered for future research, where different statistical models were applied to the different indicators based on their character to inform the analytical framework. The statistical analysis should include regression and predictive models for different indicators against the demographic indicators to assess how each of these indicators changed or influenced the changes observed across the population in 2007, based on the Community Survey data (Statistics South Africa, 2008a).

The predictive analytical framework of this study was based on using the alternative statistical methods on the latest largest household survey dataset before Census 2011 (Statistics South Africa, 2012a), which was the Community Survey conducted in 2007 (Statistics South Africa, 2008a). Such alternative methods should be promoted for expanded and broader analysis of outcome indicators like poverty and inequality.

More work will be done on education and employment relating to the metatheoretical reflections around human capital and dual labour theory. Another emerging issues such as demographic dividend will be pursued in future using Community Survey 2016.

6.6 Areas for future research

Integrated models for understanding the role of social indicators such as education and on poverty and inequality should be strengthened. Further understanding of the role of human capital and dual labour theories on life circumstances and service delivery as dimensions of poverty and inequality need to be enhanced. Broader and expanded measurement of poverty and inequality with statistical methods should be promoted.

6.7 Limitations of the study

The fact that the study uses secondary data poses a number of challenges. The following are some of the limitations. Modelling of the population background characteristics may be clouded by the level of analysis (provincial level) which gives a general picture.

Regression analysis may not clearly indicate causal effects of implementation; these will be factored into the qualitative analysis based on perceptions and discussions currently undertaken in government.

The research may have limitations regarding the exclusion of some variables of quality of life and some soft issues around social capital. All that is known is the current under-studied migration trends within South Africa, hence disregarding the population trends that can cause a misinterpretation of the results.

There are some sectors in the original data from Statistics South Africa that do not form part of this study. Analysis of the health status of the population is not covered in this study due to the focus on arguments based on the indicators chosen purposefully for this study.

Data used in this study is extracted from Statistics South Africa only, as there have not been other datasets that could be used with the coverage that the Community Survey could provide (Statistics South Africa, 2007).

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ANNEXURE 1: ADDITIONAL FIGURES AND TABLES

1. EDUCATION

Table 1.1: School attendance by different age grouping, CS 2007

	6–64 years		6–24 years		6–15 years	
Attended school	**Number**	**%**	**Number**	**%**	**Number**	**%**
Yes	14,375,242	36.5	13,833,767	73.9	9,993,662	95.9
No	24,993,009	63.5	4,891,673	26.1	431,760	4.1
Total	**39,368,251**	**100.0**	**18,725,440**	**100**	**10,425,422**	**100.0**

Table 1.2: School attendance by age and gender, CS 2007

Age		**Male**		**Female**		**RSA**
6	546,452	92.2	525,499	93.0	1,071,952	92.6
7	475,629	94.9	547,976	96.0	1,023,605	95.5
8	700,541	96.9	585,522	97.1	1,286,063	97.0
9	592,076	96.7	479,156	96.5	1,071,232	96.6
10	464,465	96.2	509,822	97.4	974,287	96.8
11	505,039	96.7	381,841	96.3	886,880	96.5
12	453,862	96.3	677,994	97.5	1,131,857	97.0
13	441,627	96.0	557,441	96.7	999,068	96.4
14	543,354	96.2	437,613	95.2	980,967	95.8
15	511,165	94.3	488,347	94.1	999,512	94.2
16	520,933	90.9	444,320	89.4	965,254	90.2
17	459,750	84.0	412,020	80.3	871,770	82.3
18	554,049	67.1	399,967	63.5	954,015	65.6
19-24	2,997,242	30.7	2,511,737	28.2	5,508,980	29.5
25-40	5,748,305	3.1	5,729,374	4.6	11,477,680	3.9
41-64	4,517,784	1.0	4,647,347	1.2	9,165,131	1.1
Total	**20,032,273**	**36.9**	**19,335,978**	**36.2**	**39,368,251**	**36.5**

Figure 1.1: Trends in school attendance

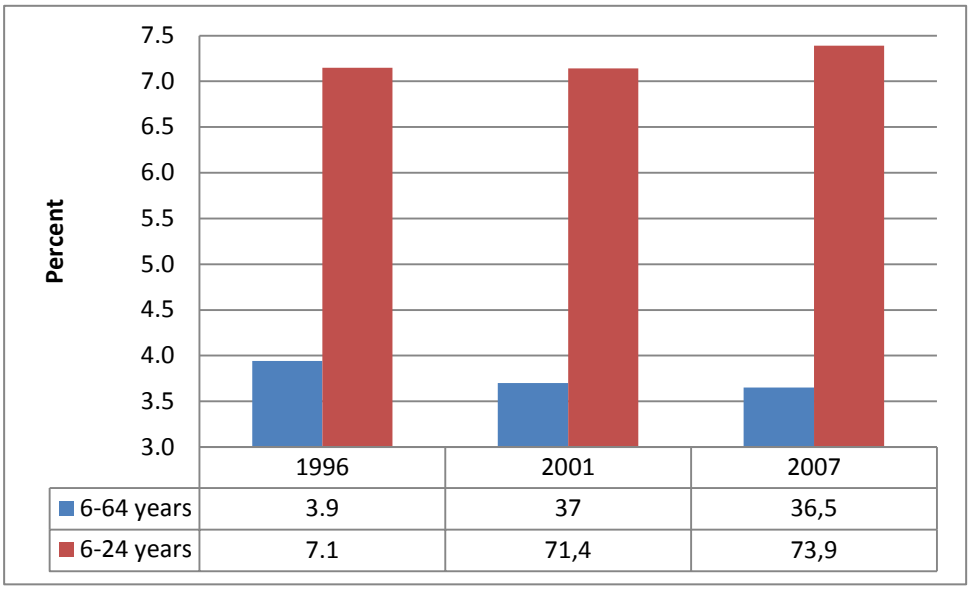


Table 1.3: Trends in school attendance 1996–2007

	6–64 years		6–24 years	
Attended school	**Number**	**%**	**Number**	**%**
	1996			
Yes	12,636,876	39.4	11,683,317	71.5
No	19,416,114	60.6	4,663,254	28.5
Total	**32,052,990**	**100.0**	**16,346,571**	**100.0**
	2001			
Yes	13,751,114	37.0	13,001,061	71.4
No	23,403,944	63.0	5,205,012	28.6
Total	**37,155,058**	**100.0**	**18,206,073**	**100.0**
	2007			
Yes	14,375,242	36.5	13,833,767	73.9
No	24,993,009	63.5	4,891,673	26.1
Total	**39,368,251**	**100.0**	**18,725,440**	**100.0**

Table 1.4: School attendance by population group, 2007

	6–64 years		6–24 years	
	Number	**%**	**Number**	**%**
Black African	30,812,398	39.3	15,600,371	75.0
Coloured	3,590,010	28.9	1,568,641	63.9
Indian/Asian	1,108,892	26.1	399,524	67.3
White	3,856,952	24.3	1,156,904	75.1
Total	**39,368,251**	**36.5**	**18,725,440**	**73.9**

Table 1.5: School attendance by province, 2007

	6–64 years		6–24 years		6–15 years	
Province	**Number**	**%**	**Number**	**%**	**Number**	**%**
Western Cape	3,250,813	31.7	1,455,042	68.2	803,675	94.0
Eastern Cape	6,894,983	37.3	3,354,610	73.9	1,771,123	94.9
Northern Cape	888,633	27.0	350,685	65.5	180,945	93.6
Free State	2,475,151	32.0	1,052,638	72.2	533,055	96.4
Kwazulu-Natal	8,634,857	38.3	4,441,452	71.9	2,372,506	94.8
North West	2,840,515	34.5	1,298,341	72.6	703,579	94.3
Gauteng	5,641,578	36.1	2,552,315	73.8	1,410,277	95.0
Mpumalanga	5,274,018	47.3	3,010,497	82.3	1,931,454	99.6
Limpopo	1,973,317	36.3	904,609	75.8	593,499	98.5
Outside RSA	1,494,387	14.4	305,251.70	62.0	125,310	90.8
Total	**39,368,251**	**36.5**	**18,725,440**	**73.9**	**10,425,422**	**95.86**

Table 1.6: School attendance by orphanhood status, 2007

	16–24 years		6–15 years	
	Number	**%**	**Number**	**%**
Both dead	1,343,512	63.4	730,596	92.3
Only mother dead	817,693	55.2	395,245	91.2
Only father dead	3,499,873	63.2	1,784,447	92.6
Paternal orphan	4,843,386	63.2	2,515,043	92.5
Maternal orphan	2,161,206	60.3	1,125,841	91.9
Both alive	13,064,361	79.0	9,352,157	95.1
Total	**18,725,440**	**73.9**	**12,262,446**	**94.5**

Table 1.7: Logistic and probit regression of school attendance

	Dprobit		Logistic	Logit	
	dF/dx	P>|z|	Odds ratio	Coef.	P>|z|
Black African	0.0488	0.000	1.988	0.687	0.000
Coloured					
Indian/Asian	0.0238	0.000	1.617	0.481	0.000
White	0.0413	0.000	2.944	1.080	0.000
Urban formal	0.0488	0.000	2.407	0.878	0.000
Urban informal	0.0192	0.000	1.497	0.404	0.000
Traditional area	0.0498	0.000	2.534	0.930	0.000
Rural informal			1.000		
Western Cape	0.0107	0.000	1.216	0.196	0.000
Eastern Cape			1.000		
Northern Cape	0.0017	0.621	1.033	0.033	0.558
Free State	0.0240	0.000	1.646	0.498	0.000
KwaZulu-Natal	0.0081	0.000	1.170	0.157	0.000
North West	0.0062	0.010	1.137	0.129	0.003
Gauteng	0.0186	0.000	1.461	0.379	0.000
Mpumalanga	0.0611	0.000	7.280	1.985	0.000
Limpopo	0.0434	0.000	3.332	1.203	0.000
Age	-0.0223	0.000	0.664	-0.410	0.000
Constant				6.911	0.000

Table 1.8: Trends in highest level of education by population group

1996	Black African	Coloured	Indian/Asian	White
No schooling	23.8	9.6	5.2	1.1
Some primary	21.5	20.4	8.2	0.5
Completed primary	19.5	25.9	18.8	3.2
Some secondary	19.6	26.6	27.9	22.1
Grade 12/Std 10	11.5	12.1	28.1	43.3
Higher	4.2	5.3	11.8	29.9
2001				
No schooling	21.7	7.9	4.1	1.3
Some primary	20.4	19.6	7.2	0.9
Completed primary	7.7	10.4	4.4	0.6
Some secondary	29.0	40.9	36.0	24.1
Grade 12/Std 10	15.4	16.2	32.8	40.5
Higher	5.8	5.1	15.4	32.7
2007				
No schooling	10.9	5.1	2.2	0.4
Some primary	19.7	17.0	5.8	0.6
Completed primary	7.0	9.4	3.3	0.6
Some secondary	38.1	43.0	37.6	18.6
Grade 12/Std 10	11.7	14	22	24.4
Higher	12.7	11.7	29.1	55.5

Table 1.9: Educational achievement (25–64 years) by population group and gender

	1996			2001			2007		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Black African	***5,276,946***	***6,050,610***	***11,327,556***	***6,619,226***	***7,563,589***	***14,182,815***	***7,600,278***	***7,438,557***	***15,038,835***
No schooling	21.6	25.7	23.8	19.3	23.8	21.7	9.4	12.3	10.9
Some primary	22.2	20.9	21.5	21.4	19.6	20.4	20.2	19.2	19.7
Completed primary	19.5	19.6	19.5	7.7	7.6	7.7	7.7	6.4	7.0
Some secondary	19.7	19.4	19.6	29.5	28.6	29.0	38.9	37.2	38.1
Grade 12/Std 10	12.8	10.3	11.5	16.6	14.4	15.4	12.0	11.4	11.7
Higher	4.2	4.2	4.2	5.4	6.0	5.8	11.9	13.6	12.7
Coloured	***708,369***	***793,577***	***1,501,946***	***852,006***	***972,908***	***1,824,914***	***939,495***	***1,048,857***	***1,988,352***
No schooling	9.7	9.5	9.6	7.9	7.9	7.9	5.0	5.1	5.1
Some primary	20.0	20.8	20.4	19.4	19.8	19.6	16.6	17.3	17.0
Completed primary	23.9	27.7	25.9	9.4	11.3	10.4	8.3	10.3	9.4
Some secondary	26.5	26.7	26.6	40.6	41.1	40.9	43.4	42.6	43.0
Grade 12/Std 10	14.0	10.4	12.1	17.5	15.0	16.2	14.7	13.3	14.0
Higher	5.9	4.8	5.3	5.3	4.9	5.1	12.0	11.4	11.7

Table 1.9: Educational achievement (25–64) by population group and gender (concluded)

	1996			2001			2007		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Indian/Asian	***231,658***	***252,022***	***483,680***	***283,660***	***306,215***	***589,875***	***318,123***	***383,576***	***701,699***
No schooling	2.7	7.6	5.2	2.6	5.5	4.1	1.7	2.6	2.2
Some primary	4.8	11.4	8.2	4.4	9.9	7.2	4.1	7.2	5.8
Completed primary	16.3	21.2	18.8	3.2	5.5	4.4	2.9	3.6	3.3
Some secondary	29.1	26.8	27.9	35.5	36.6	36.0	31.2	42.9	37.6
Grade 12/Std 10	32.3	24.2	28.1	36.8	29.1	32.8	26.5	18.3	22.0
Higher	14.9	8.9	11.8	17.6	13.4	15.4	33.6	25.4	29.1
White	***352,649***	***276,953***	***629,602***	***1,135,923***	***1,215,459***	***2,351,382***	***1,299,137***	***1,379,740***	***2,678,877***
No schooling	1.0	1.1	1.1	1.2	1.3	1.3	0.4	0.5	0.4
Some primary	0.5	0.5	0.5	0.8	1.0	0.9	0.6	0.6	0.6
Completed primary	3.2	3.2	3.2	0.5	0.6	0.6	0.5	0.7	0.6
Some secondary	18.1	26.0	22.1	22.8	25.3	24.1	17.8	19.4	18.6
Grade 12/Std 10	42.7	43.7	43.3	39.4	41.5	40.5	21.0	27.5	24.4
Higher	34.6	25.5	29.9	35.3	30.2	32.7	59.7	51.5	55.5

Table 1.10: Educational attainment by province

Province	Number	No schooling	Some primary	Completed primary	Some secondary	Grade 12/ Std 10	Higher
Western Cape	1,765,327	3.2	14.0	7.6	39.7	15.9	19.7
Eastern Cape	3,498,036	7.5	24.3	9.3	36.7	10.4	11.8
Northern Cape	532,191	9.6	18.3	7.6	34.0	14.4	16.2
Free State	1,409,010	6.7	21.3	7.5	33.6	12.7	18.2
Kwazulu-Natal	4,145,333	11.0	18.4	5.9	35.0	14.7	15.0
North West	1,525,745	11.0	18.3	5.9	36.4	12.8	15.7
Gauteng	3,048,574	4.6	8.2	4.1	35.6	18.0	29.5
Mpumalanga	2,255,684	11.7	13.0	3.2	44.2	9.0	19.0
Limpopo	1,055,441	5.4	16.1	4.4	30.9	18.5	24.8
Outside RSA	1,172,422	18.1	9.2	9.0	24.7	15.8	23.3
Total	**20,407,763**	**8.6**	**16.5**	**6.3**	**36.0**	**13.9**	**18.8**

Table 1.11: Proportion working by educational attainment and population group

	Black African	Coloured	Indian/Asian	White
	15,038,83	**1,988,352**	**701,699**	**2,678,877**
No schooling	39.1	38.6	19.1	32.2
Some primary	43.4	45.9	23.5	47.8
Completed primary	50.9	47.8	29.5	44.8
Some secondary	47.6	57.7	38.6	61.4
Grade 12/Std 10	55.2	74.8	68.5	79.1
Higher	71.6	81.6	80.8	83.3
Total	**50.0**	**59.0**	**55.9**	**77.6**

Note: The percentages not shown are those not working

Table 1.12: Working status by educational attainment and geographical type, rural-urban

	Urban	Rural	Urban formal	Urban informal	Tribal area	Rural formal
	14,438,372	**5,969,390**	**12,528,770**	**1,909,603**	**4,726,985**	**208,711**
No schooling	44.6	35.3	46.0	38.9	33.8	41.9
Some primary	47.2	38.6	45.6	53.0	32.8	57.3
Completed primary	54.3	38.3	49.5	68.6	29.8	68.9
Some secondary	51.4	43.5	52.6	44.5	40.3	64.2
Grade 12/Std 10	67.5	45.9	68.4	57.2	32.4	81.6
Higher	78.3	71.9	78.8	63.0	63.7	89.0
Total	**59.2**	**43.8**	**60.5**	**51.0**	**38.2**	**65.2**

Note: The percentages not shown are those not working

Table 1.13: Educational attainment by level of income category

	No schooling	Some primary	Completed primary	Some secondary	Grade 12/ Std 10	Higher
No income	39.5	42.8	39.4	45.9	35.1	19.5
R1,00 – R400	11.2	5.9	5.6	3.8	2.1	0.9
R401 – R800	15.4	13.9	8.8	8.2	4.3	1.8
R801 – R1,600	27.6	25.0	23.7	18.4	13.6	5.7
R1,601 – R3,200	4.2	9.0	13.1	12.6	13.1	8.8
R3,201 – R6,400	1.5	2.7	8.3	5.9	16.2	17.1
R6,401 – R12,800	0.4	0.6	0.8	2.8	9.8	22.3
R12,801 – R25,560	0.2	0.1	0.2	0.9	3.9	15.9
R25,601 – R51,200	0.1	0.1	0.1	1.3	1.3	5.4
R51,201 – R102,400	0.0	0.0	0.0	0.1	0.3	1.6
R102,401 – R204,800	0.0	0.0	0.0	0.1	0.2	0.7
R204,801 or more	0.0	0.0	0.0	0.0	0.1	0.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 1.14: Results of the multinominal logit for school attainment

	No schooling		Some primary		Primary		Grade 12/Std 10		Higher	
	RRR	P>|Z|	RRR	P>|Z|	RRR	P>|Z|	RRR	P>|Z|	RRR	P>|Z|
Coloured vs Black African/SS	0.878	0.378	1.113	0.001	1.278	0.000	0.998	0.988	0.999	0.994
Coloured vs Indian/Asian/SS	0.871	0.629	0.640	0.000	0.770	0.000	1.873	0.004	2.941	0.000
Coloured vs White/SS	0.372	0.000	0.580	0.000	0.732	0.000	1.173	0.411	1.431	0.116
Female vs Male/SS	1.338	0.000	0.899	0.000	1.183	0.000	0.732	0.000	0.608	0.000
Rural Formal vs Urban formal/SS	0.317	0.000	1.058	0.071	0.446	0.000	2.251	0.000	2.218	0.003
Rural Formal vs Urban informal/SS	0.526	0.000	1.100	0.021	0.381	0.000	1.520	0.112	1.037	0.915
Rural formal vs Tribal area/SS	0.389	0.000	0.923	0.013	0.363	0.000	0.697	0.124	0.321	0.000
Eastern Cape vs Western Cape/SS	0.550	0.001	0.760	0.000	0.706	0.000	0.821	0.299	0.647	0.060
Eastern Cape vs Northern Cape/SS	1.256	0.189	0.826	0.000	0.764	0.000	0.781	0.300	0.354	0.005
Eastern Cape vs Free State/SS	0.694	0.034	0.746	0.000	0.693	0.000	0.678	0.066	0.410	0.003
Eastern Cape vs KwaZulu-Natal/SS	0.923	0.375	0.790	0.000	0.866	0.000	1.726	0.000	1.385	0.042
Eastern Cape vs North West/SS	1.129	0.306	0.781	0.000	0.694	0.000	1.343	0.077	1.319	0.177
Eastern Cape vs Gauteng/SS	0.531	0.000	0.576	0.000	0.625	0.000	0.940	0.661	0.986	0.932
Eastern Cape vs Mpumalanga/SS	0.150	0.000	1.161	0.000	0.898	0.000	0.362	0.000	0.238	0.000
Eastern Cape vs Limpopo/SS	0.240	0.000	0.200	0.000	1.436	0.000	1.268	0.265	2.286	0.000

SS- Some secondary was the relative category for school attainment

Table 1.15: Gender composition of the population (25-64 years) by province, population group and age group

	Number	Male	Female	Sex ratio
Province		***10,513,437***	***10,452,839***	***100.6***
WC	2,598,981	48.3	51.7	93.5
EC	2,355,850	44.4	55.6	79.8
NC	481,968	49.3	50.7	97.4
FS	1,247,900	48.4	51.6	93.8
KZN	4,057,052	45.9	54.1	84.9
NW	1,482,646	51.9	48.2	107.7
GT	5,444,169	50.3	49.7	101.1
MP	3,297,710	60.7	39.3	154.5
RSA	*20,966,276*	*50.1*	*49.9*	*100.6*
Population group				
Black African	15,451,436	51.0	49.1	103.9
Coloured	2,057,853	47.7	52.3	91.3
Indian/Asian	713,533	45.5	54.5	83.6
White	2,743,454	48.6	51.4	94.6
RSA	*20,966,276*	*50.1*	*49.9*	*100.6*
Age group				
25–29	3,913,393	49.1	50.9	96.3
30–34	4,007,604	55.1	44.9	122.9
35–39	3,213,992	48.9	51.1	95.9
40–44	2,967,443	50.7	49.4	102.6
45–49	2,319,563	48.1	51.9	92.6
50–54	1,850,072	50.0	50.0	100.2
55–59	1,611,062	46.5	53.5	86.8
60–64	1,083,148	47.9	52.1	91.9
Total	**20,966,276**	**50.1**	**49.9**	**100.6**

Note: These sex ratios may slightly differ from what was published because of the introduction of institutional population and weights

Table 1.16: Highest educational attainment (25–64 years) by gender, 1996–2007

	1996			2001			2007		
	Male	**Female**	**RSA**	**Male**	**Female**	**RSA**	**Male**	**Female**	**RSA**
No schooling	16.9	20.3	18.7	15.4	19.0	17.3	7.6	9.6	8.6
Some primary	18.3	17.8	18.1	18.0	17.0	17.5	16.8	16.1	16.5
Completed primary	17.5	18.2	17.9	6.8	7.1	7.0	6.7	5.9	6.3
Some secondary	20.5	21.2	20.9	29.9	29.7	29.8	36.4	35.5	36.0
Grade 12/Std 10	17.8	15.2	16.4	20.2	18.2	19.2	13.8	14.0	13.9
Higher	9.0	7.2	8.1	9.6	9.1	9.3	18.7	18.9	18.8

Table 1.17: Educational achievement (25–64 years) by population group and gender

	Male	**Female**	**Total**
Black African	***7,600,278***	***7,438,557***	***15,038,835***
No schooling	9.4	12.3	10.9
Some primary	20.2	19.2	19.7
Completed primary	7.7	6.4	7.0
Some secondary	38.9	37.2	38.1
Grade 12/Std 10	12.0	11.4	11.7
Higher	11.9	13.6	12.7
Coloured	***939,495***	***1,048,857***	***1,988,352***
No schooling	5.0	5.1	5.1
Some primary	16.6	17.3	17.0
Completed primary	8.3	10.3	9.4
Some secondary	43.4	42.6	43.0
Grade 12/Std 10	14.7	13.3	14.0
Higher	12.0	11.4	11.7
Indian/Asian	***318,123***	***383,576***	***701,699***
No schooling	1.7	2.6	2.2
Some primary	4.1	7.2	5.8
Completed primary	2.9	3.6	3.3
Some secondary	31.2	42.9	37.6
Grade 12/Std 10	26.5	18.3	22.0
Higher	33.6	25.4	29.1

Table 1.17: Educational achievement (25–64 years) by population group and gender (concluded)

	Male	Female	Total
White	***1,299,137***	***1,379,740***	***2,678,877***
No schooling	0.4	0.5	0.4
Some primary	0.6	0.6	0.6
Completed primary	0.5	0.7	0.6
Some secondary	17.8	19.4	18.6
Grade 12/Std 10	21.0	27.5	24.4
Higher	59.7	51.5	55.5
RSA	***10,157,032***	***10,250,730***	***20,407,762***
No schooling	7.6	9.6	8.6
Some primary	16.8	16.1	16.5
Completed primary	6.7	5.9	6.3
Some secondary	36.4	35.5	36.0
Grade 12/Std 10	13.8	14.0	13.9
Higher	18.7	18.9	18.8
Total	**100.0**	**100.0**	**100.0**

Table 1.18: Working status (25–64 years) by population group and gender

	Men		Women		RSA	
Population group	**Number**	**%**	**Number**	**%**	**Number**	**%**
Black African	7,643,384	58.3	7,505,218	41.4	15,148,602	49.9
Coloured	948,743	68.6	1,057,995	50.4	2,006,738	59.0
Indian/Asian	321,354	76.4	385,450	38.8	706,804	55.9
White	1,304,136	87.2	1,388,492	68.1	2,692,628	77.3
Total	**10,217,617**	**63.5**	**10,337,155**	**45.8**	**20,554,772**	**54.6**

Note: These differences in job opportunities may be a result of education achievements within the different population groups

Table 1.19: Working status (25–64 years) by population group and gender

	Men		Women		RSA	
Education level	**Number**	**%**	**Number**	**%**	**Number**	**%**
No schooling	769,824	42.4	980,320	36.0	1,750,144	38.8
Some primary	1,697,794	51.5	1,636,203	35.0	3,333,997	43.4
Completed primary	672,790	65.0	603,114	33.1	1,275,904	49.9
Some secondary	3,678,804	60.3	3,628,377	38.2	7,307,181	49.3
Grade 12/Std 10	1,399,024	71.9	1,430,378	54.9	2,829,402	63.3
Higher	1,890,171	83.1	1,932,718	71.5	3,822,889	77.2
Total	**10,108,407**	**63.6**	**10,211,110**	**45.8**	**20,319,517**	**54.7**

Table 1.20: Working status (25–64 years) by population group and gender controlling for educational attainment

Education level	Gender	Black African	Coloured	Indian/Asian	White	Total
No schooling	**Male**	42.1	48.3	37.5	31.8	42.4
	Female	36.7	29.9	9.6	32.2	36.0
	RSA	39.1	38.5	19.5	32.0	38.8
Some primary	**Male**	51.0	57.2	38.5	59.5	51.5
	Female	35.2	36.2	16.5	34.7	35.0
	RSA	43.4	45.9	23.6	47.6	43.4
Primary	**Male**	65.9	60.9	47.6	61.7	65.0
	Female	32.5	38.2	17.6	32.2	33.1
	RSA	50.9	47.7	29.6	44.4	49.9
Some secondary	**Male**	57.8	68.1	67.9	75.4	60.3
	Female	36.6	48.1	20.9	49.2	38.2
	RSA	47.6	57.7	38.5	61.3	49.3
Secondary	**Male**	65.2	80.3	82.4	86.9	71.9
	Female	44.4	69.4	51.8	73.5	54.9
	RSA	55.2	74.9	68.5	79.1	63.3
Higher	**Male**	74.3	85.9	89.2	92.0	83.1
	Female	69.2	77.5	71.7	73.7	71.5
	RSA	71.6	81.6	80.9	83.3	77.2

Table 1.21: Income levels by gender (25–64 years)

Education level	No income	<R1,601	R1,601-R3,200	R3,201+	Not stated
Males					
No schooling	31.7	54.7	9.5	0.7	3.5
Some primary	32.9	45.2	17.0	1.1	3.8
Completed primary	26.4	37.9	29.9	1.4	4.4
Some secondary	35.5	29.5	21.5	6.3	7.3
Grade 12/Std 10	24.9	20.3	27.9	16.8	10.1
Higher	13.4	6.7	24.3	45.1	10.4
Total	**29.0**	**30.5**	**21.4**	**12.1**	**7.0**
Females					
No schooling	45.9	49.7	1.5	0.4	2.5
Some primary	49.0	43.8	3.2	0.4	3.6
Completed primary	50.3	39.6	5.2	0.4	4.4
Some secondary	50.7	30.0	11.9	2.0	5.3
Grade 12/Std 10	41.5	17.7	23.7	8.8	8.4
Higher	22.6	10.5	23.8	34.3	8.8
Total	**44.1**	**30.6**	**12.2**	**7.6**	**5.6**
Total	***36.7***	***30.5***	***16.6***	***9.8***	***6.4***

Table 1.22: Income category (25–64 years) by population group and gender

	No schooling					Higher educational level			
	Black African	**Coloured**	**Asian /Indian**	**White**		**Black African**	**Coloured**	**Asian /Indian**	**White**
Male									
No income	33.1	19.0	21.6	18.0		22.3	9.9	7.8	3.4
<R1,601	53.7	65.2	36.3	51.7		10.6	7.8	5.1	1.9
R1,601 – R3,200	9.5	8.9	20.6	4.5		36.4	23.4	24.1	9.2
R3,201+	0.6	0.5	5.9	13.5		23.4	45.1	49.5	72.4
Not stated	3.1	6.5	15.7	12.4		7.5	13.7	13.5	13.1
Female									
No income	47.0	36.8	28.7	36.5		27.2	17.2	24.1	16.0
<R1,601	49.2	54.9	60.5	34.6		10.2	9.2	4.9	12.1
R1,601 – R3,200	1.3	2.3	4.3	9.4		27.6	27.7	21.3	17.1
R3,201+	0.4	0.4	1.6	8.4		28.8	33.6	36.1	43.2
Not stated	2.2	5.6	4.9	11.2		6.2	12.4	13.5	11.6

2. EMPLOYMENT

Table 2.1: Logistic regression model for labour employment status

Labour employment status	Odds ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
Population group	1.120759	0.0817003	1.56	0.118	0.9715426	1.292893
Marital status	0.812204	0.0261880	-6.45	0.000	0.7624644	0.8651878
Sex	0.806513	0.1093307	-1.59	0.113	0.6183332	1.051962
Born province	1.037593	0.0228255	1.68	0.093	0.9938063	1.083308
Disability	1.573759	0.5801759	1.23	0.219	0.7640779	3.241447
Education level	2.124064	0.1276918	12.53	0.000	1.887974	2.389676
Type of dwelling	1.142501	0.0754849	2.02	0.044	1.003732	1.300455
Income category	2.160891	0.2454703	6.78	0.000	1.729574	2.699769

Table 2.2: Mean predicted probability for labour employment status

Labour employment status	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal	0.110195	0.002039	0.1061971	0.114194
Predicted formal	0.889805	0.002039	0.8858064	0.893803

Table 2.3: Variation of predicted probability for labour employment status over household income category

Over	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal				
Low	0.165127	0.003143	0.1589657	0.171289
Medium	0.039758	0.000844	0.0381027	0.041413
High	0.014594	0.001316	0.0120139	0.017175
Predicted formal				
Low	0.834873	0.003143	0.8287109	0.841034
Medium	0.960242	0.000844	0.9585871	0.961897
High	0.985406	0.001316	0.9828251	0.987986

Table 2.4: Variation of predicted probability for labour employment status over sex

Over	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal				
Male	0.088387	0.002157	0.0841588	0.092616
Female	0.150566	0.003961	0.1427991	0.158332
Predicted formal				
Male	0.911613	0.002157	0.907384	0.915841
Female	0.849434	0.003961	0.8416677	0.857201

Table 2.5: Variation of predicted probability for labour employment status over type of dwelling

Over	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal				
Formal	0.096354	0.002084	0.0922689	0.10044
Traditional	0.236102	0.013373	0.2098813	0.262322
Informal	0.189723	0.009118	0.1718451	0.2076
Predicted formal				
Formal	0.903646	0.002084	0.8995605	0.907731
Traditional	0.763898	0.013373	0.7376778	0.790119
Informal	0.810278	0.009118	0.7924001	0.828155

Table 2.6: Variation of predicted probability for labour employment status over disability status

Over	Mean	Std. Err.	[95% Conf.	Interval]
Predicted informal				
Yes	0.213678	0.026155	0.1623957	0.264959
No	0.108429	0.002015	0.1044774	0.11238
Predicted formal				
Yes	0.786323	0.026155	0.7350408	0.837604
No	0.891572	0.002015	0.8876204	0.895523

3. INCOME

Table 3.1: Percentage distribution of population (15–65 years) by income

Income level	Population	%	Cumulative
No income	10,416,505	41.9	41.9
R1,00 – R400	1,057,620	4.3	46.2
R401 – R800	1,732,528	7.0	53.1
R801 – R1,600	3,906,109	15.7	68.8
R1,601 – R3,200	2,150,969	8.7	77.5
R3,201 – R6,400	1,657,937	6.7	84.2
R6,401 – R12,800	1,242,083	5.0	89.2
R12,801 – R25,560	578,245	2.3	91.5
R25,601 – R51,200	253,425	1.0	92.5
R51,201 – R102,400	77,105	0.3	92.8
R102,401 – R204,800	35,989	0.1	93.0
R204,801 or more	21,672	0.1	93.0
No response	1,730,901	7.0	100.0
Total	**24,861,087**	**100.0**	

Table 3.2: Correlation between income and population group

	Correlation	
	No income	**R12,801+**
Proportion black	**0.7287**	-0.5423
Proportion white	-0.9524	**0.9251**
Proportion coloured	-0.5721	0.3494
Proportion Indian/Asian	-0.0077	0.1452

Table 3.3: Proportion of the population by income and province of enumeration

Province	No income	R1,00–R1,600	R1,601–R12,800	R12,801+	No response	Total
WC	29.61	25.61	26.96	5.68	12.15	100.00
EC	52.76	27.25	12.77	1.84	5.37	100.00
NC	41.42	30.33	18.24	2.87	7.14	100.00
FS	41.75	33.28	20.14	2.33	2.51	100.00
KZN	47.37	27.82	16.47	2.35	6.00	100.00
NW	46.70	25.16	21.63	1.75	4.76	100.00
GT	33.97	22.5	26.23	7.33	9.97	100.00
MP	44.86	29.79	18.35	2.84	4.17	100.00
LP	49.04	32.99	14.05	1.64	2.29	100.00
Total	**41.90**	**26.93**	**20.32**	**3.89**	**6.96**	**100.00**

Table 3.4: Proportion of income levels by highest level of education (15–65 years)

Highest level of education	No income	R1,00–R1,600	R1,601–R12,800	R12,801+	No response	Total
No education	8.1	14.0	2.7	0.6	4.1	8.0
Primary	25.1	32.4	11.6	1.8	13.3	22.6
Secondary incomplete	43.0	37.0	30.9	11.3	33.1	37.0
Secondary complete	18.8	13.1	32.3	27.8	28.5	21.0
Post-secondary	3.9	2.5	21.6	57.6	16.7	10.1
Not stated	1.1	1.1	1.0	0.8	4.2	1.3
	100.00	**100.00**	**100.00**	**100.00**	**100.00**	**100.0**

Table 3.5: Proportion of the population by income categories and age (15–65 years)

Age	No income	R1,00–R12,800	R12,800+	No response
15–19	76.3	17.2	0.2	6.3
20–24	62.5	30.3	0.7	6.5
25–29	48.3	42.3	2.3	7.2
30–34	40.3	48.9	3.9	7.0
35–39	35.0	52.6	5.4	7.0
40–44	32.6	54.5	5.6	7.2
45–49	32.5	53.8	6.3	7.5
50–54	33.3	53.4	5.8	7.5
55–59	33.8	53.8	5.3	7.1
60–64	20.4	69.7	4.2	5.7
65–69	15.6	75.5	3.2	5.7
Total	**41.9**	**47.3**	**3.9**	**7.0**

Table 3.6: Proportion of the population earning no income and earning R12,800+ by gender

	No education	Primary	Secondary incomplete	Secondary complete	Post-secondary
No income					
Male	36.64	40.55	39.22	29.28	11.29
Female	46.51	52.30	57.09	45.25	21.00
Earn R12,800+					
Male	0.38	0.42	1.77	7.30	31.07
Female	0.26	0.21	0.67	3.05	13.91

Table 3.7: Proportion of the population by marital status and income level

Marital status	No income	R1,00–R12,800	R12,801+	No response
Married civil/religious ceremony	27.5	53.4	9.8	9.3
Married traditional	41.5	52.5	1.3	4.7
Polygamous marriage	33.6	59.0	1.4	6.0
Living together as married couple	40.1	52.0	2.3	5.7
Never married	53.1	38.9	1.4	6.6
Widower/widow	30.7	63.9	1.3	4.1
Separated	35.2	58.4	1.7	4.7
Divorced	22.7	59.3	9.1	9.0
Total	**41.9**	**47.3**	**3.9**	**7.0**

Table 3.8: Proportion of the population with disability by income

Disability?	No income	R1,00–R12,800	R12,801+	No response	Total
Yes	24.25	71.97	0.92	2.86	100.00
No	42.96	45.85	4.07	7.12	100.00
Don't know	37.04	32.02	2.00	28.93	100.00
Total	**41.90**	**47.25**	**3.89**	**6.96**	**100.00**

mlogit income5 pop_group1- pop_group3 provr1- provr3 provr5- provr10 educ62- educ66 ager1- ager7 ager9- ager11 gender1, rrr

Multinomial logistic regression	*Number of obs*	*= 610692*
	LR chi2(112)	*= 325492.56*
	Prob > chi2	*= 0.0000*
Log likelihood = -613186.55	*Pseudo R2*	*= 0.2097*

4. HOUSEHOLD GOODS

Table 4.1: Proportion of households by selected indicators by province

Province	Has at least one	Has all 8	Does not have any	Has all 5
	Indicator I	Indicator II	Indicator III	Indicator IV
WC	97.1	11.2	2.9	42.4
EC	85.9	1.7	14.1	10.2
NC	91.7	3.6	8.3	30.5
FS	95.4	2.4	4.6	33.5
KZN	92.3	3.8	7.7	25.2
NW	92.1	1.6	8.0	18.2
GT	96.5	7.4	3.5	37.8
MP	94.2	1.8	5.8	21.5
LP	92.2	0.9	7.8	14.7
Total	**93.37**	**4.58**	**6.63**	**27.2**

Table 4.2: Proportion of households by selected indicators by gender, population group, age group and household size

	Has at least one	Has all 8	Does not have any	Has all 5
	Indicator I	Indicator II	Indicator III	Indicator IV
Gender				
Male	93.9	6.3	6.1	30.7
Female	92.6	2.0	7.4	22.0
Population group				
Black African	91.8	0.7	8.2	17.6
Coloured	96.4	3.5	3.7	37.4
Indian/Asian	99.5	11.9	0.5	66.3
White	99.9	26.7	0.1	69.9
Age group				
<18	84.7	0.5	15.3	10.7
18–64	93.8	4.8	6.3	27.4
65+	91.8	3.4	8.2	27.3
18–30	92.1	1.5	7.9	17.7
31–64	94.1	5.5	5.9	29.4
Total	**93.4**	**4.6**	**6.6**	**27.2**

Table 4.2: Proportion of households by selected indicators by gender, population group, age group and household size (concluded)

	Has at least one	Has all 8	Does not have any	Has all 5
	Indicator I	**Indicator II**	**Indicator III**	**Indicator IV**
Household size				
1	86.6	2.1	13.4	15.5
2	93.2	7.1	6.8	30.9
3	94.4	5.6	5.6	30.1
4	95.7	7.4	4.3	34.9
5	95.6	4.5	4.4	30.4
6	95.5	2.7	4.5	26.9
7	95.1	1.3	4.9	23.9
8+	95.7	0.5	4.3	21.2
Total	**93.4**	**4.6**	**6.6**	**27.2**

Table 4.3: Proportion of households by selected indicators by educational attainment of the household head, and income of the household head

	Has at least one	Has all 8	Does not have any	Has all 5
	Indicator I	**Indicator II**	**Indicator III**	**Indicator IV**
Educational attainment				
No education	85.6	0.1	14.4	9.2
Primary	90.4	0.2	9.6	14.7
Secondary-incomplete	94.6	1.8	5.4	24.7
Secondary-complete	98.3	8.6	1.7	43.4
Post-secondary	99.6	21.9	0.4	62.5
Not stated	94.7	2.9	5.3	26.2
Household income				
No income	89.5	1.1	10.5	15.3
R1,00 – R1,600	91.2	0.4	8.8	15.5
R1,601 – R12,800	98.0	5.3	2.0	41.4
R12,801+	99.8	35.7	0.2	74.0
No response	97.3	12.2	2.7	46.1
Total	**93.4**	**4.6**	**6.6**	**27.2**

Table 4.4: Logistics regression results for indicator

	Indicator IV		Indicator II	
	Odds ratio	**P>|z|**	**Odds ratio**	**P>|z|**
Western Cape	3.23007	0.000	2.63747	0.000
Eastern Cape	1.00000		1.00000	
Northern Cape	2.86361	0.000	1.57048	0.000
Free State	5.89016	0.000	3.63187	0.000
KwaZulu-Natal	2.60416	0.000	1.69317	0.000
North West	2.48879	0.000	2.16793	0.000
Gauteng	4.36673	0.000	3.33754	0.000
Mpumalanga	3.11602	0.000	3.04273	0.000
Limpopo	2.22150	0.000	2.28745	0.000
Male	0.90027	0.000	0.89852	0.000
Black African	0.24363	0.000	0.05321	0.000
Coloured	0.46080	0.000	0.07458	0.000
Indian	1.35180	0.000	0.52537	0.016
White	1.00000			
No education	1.00000			
Primary	1.78259	0.000	1.79627	0.000
Secondary incomplete	3.14532	0.000	3.48413	0.000
Secondary complete	5.09942	0.000	7.74336	0.000
Post-secondary	8.11945	0.000	18.93245	0.000
Not stated	2.57118	0.000	2.16270	0.000
Hh size	1.19068	0.000	1.33033	0.000
<18 years	0.44072	0.000	0.60174	0.000
18–30	0.30092	0.000	0.70728	0.000
31–64	0.58107	0.000	0.95561	0.055
65+	1.00000			
No income	1.00000			
<R1,601	1.01846	0.275	1.47517	0.000
R1,601 – R12,800	2.15022	0.000	3.36352	0.000
>R12,800	3.42643	0.000	5.36996	0.000
Not stated	2.02142	0.000	1.97862	0.000

5. WATER

Table 5.1: Cross-tabulation of water service quality against income, sex and population group

Water service quality		Income category				Sex		Population group			
		Other	Low	Medium	High	Male	Female	Black African	Coloured	Indian/Asian	White
Very good	Number	11,038	130,546	22,616	1,437	104,725	60,912	114,389	21,430	5,304	24,514
	Percent	83.13	62.9	93.34	92.47	71.24	61.14	59.53	92.04	97.82	95.11
Good	Number	1,283	45,572	658	36	25,617	21,932	46,371	976	71	131
	Percent	9.66	21.96	2.72	2.32	17.43	22.02	24.13	4.19	1.31	0.51
Fair	Number	848	30,115	928	80	15,776	16,195	30,062	773	39	1,097
	Percent	6.39	14.51	3.83	5.15	10.73	16.26	15.65	3.32	0.72	4.26
Poor	Number	109	1,324	27	1	881	580	1,316	104	8	33
	Percent	0.82	0.64	0.11	0.06	0.6	0.58	0.68	0.45	0.15	0.13

Table 5.2: Cross-tabulation of water service quality against type of dwelling and type of toilet facility

Water service quality		Type of dwelling				Toilet facility							
		Formal	Traditional	Informal	Other	Flush toilet	Flush toilet – septic	Dry toilet	Pit toilet	Pit latrine	Chemical	Bucket toilet	None
Very good	Number	133,457	5,558	17,579	9,043	124,076	6,079	3,868	6,504	17,175	344	3,803	3,788
	Percent	79.97	16.57	50.06	81.66	96.79	78.95	35.53	37.81	33.6	35.28	62.98	15.46
Good	Number	20,667	10,421	15,222	1,239	2,528	858	4,188	6,471	21,843	407	2,002	9,252
	Percent	12.38	31.06	43.35	11.19	1.97	11.14	38.46	37.61	42.73	41.74	33.16	37.76
Fair	Number	12,122	17,293	1,827	729	1,441	752	2,743	4,110	11,641	215	198	10,871
	Percent	7.26	51.55	5.2	6.58	1.12	9.77	25.19	23.89	22.77	22.05	3.28	44.37
Poor	Number	632	277	489	63	148	11	89	119	459	9	35	591
	Percent	0.38	0.83	1.39	0.57	0.12	0.14	0.82	0.69	0.9	0.92	0.58	2.41

Table 5.3: Multinomial logistic regression analysis for quality of water service

Quality of water service delivery	RRR	Std. Err.	Z	P>z	[95% Conf.	Interval]
Good						
Household size	1.01082	0.002608	4.17	0	1.005721	1.015944
Income category	0.8556649	0.0202922	-6.57	0	0.8168031	0.8963758
Marital status	1.020978	0.0036165	5.86	0	1.013914	1.028091
Type of toilet facility	1.836765	0.0056813	196.57	0	1.825664	1.847934
Type of dwelling	1.449389	0.0099482	54.07	0	1.430021	1.469018
Level of education	0.9997755	0.0005555	-0.4	0.686	0.9986873	1.000865
Sex	1.171755	0.0167448	11.09	0	1.139391	1.205038
Population group	0.3737908	0.0088291	-41.66	0	0.3568805	0.3915023
Province	1.007062	0.0015387	4.61	0	1.00405	1.010082
Fair						
Household size	1.098169	0.0030261	33.98	0	1.092253	1.104116
Income category	1.103167	0.0281032	3.85	0	1.049439	1.159647
Marital status	0.9615958	0.0038939	-9.67	0	0.953994	0.9692581
Type of toilet facility	2.026853	0.0073812	194	0	2.012438	2.041372
Type of dwelling	1.135753	0.0102521	14.1	0	1.115836	1.156026
Level of education	1.00812	0.0005678	14.36	0	1.007008	1.009233
Sex	1.425314	0.0235749	21.43	0	1.379849	1.472277
Population group	0.8573833	0.0122648	-10.76	0	0.8336786	0.8817621
Province	0.89316	0.0023786	-42.43	0	0.8885101	0.8978343
Poor						
Household size	1.111377	0.0104501	11.23	0	1.091083	1.132049
Income category	0.5101216	0.0487916	-7.04	0	0.4229207	0.6153024
Marital status	1.077768	0.0165375	4.88	0	1.045838	1.110673
Type of toilet facility	2.102589	0.0268527	58.19	0	2.050611	2.155883
Type of dwelling	1.607485	0.0478199	15.96	0	1.51644	1.703997
Level of education	1.011732	0.001685	7	0	1.008435	1.01504
Sex	0.8198137	0.0501838	-3.25	0.001	0.7271265	0.9243158
Population group	1.147277	0.0602789	2.61	0.009	1.035012	1.271719
Province	1.022677	0.0031015	7.39	0	1.016616	1.028774

Table 5.4: Predicted probabilities for categories of quality of water service delivery

Quality of water service delivery	Observation	Mean	Std. Dev.	Min	Max
Predicted very good	246618	0.0059241	0.0072071	0.0000972	0.1370625
Predicted good	246618	0.6716339	0.3070857	0.0070132	0.959482
Predicted fair	246618	0.1928043	0.174634	0.0214351	0.7304798
Predicted poor	246618	0.1296377	0.1380747	0.0155684	0.8733895

Table 5.5: Variation of probabilities across independent variable income level categories

Over	Mean	Standard Error	[95% Conf.	Interval]
Predicted poor water services				
Low	0.1445293	0.0003113	0.1439192	0.1451395
Medium	0.0419372	0.0004324	0.0410898	0.0427846
High	0.0387673	0.0015865	0.0356578	0.0418767

Table 5.6: Variation of probabilities across type of toilet facility

Over	Mean	Std. Err.	[95% Conf.	Interval]
Predicted poor				
Flush toilet – sewerage	0.0250808	0.0000208	0.02504	0.0251216
Flush toilet – septic tank	0.0488273	0.00016	0.0485137	0.0491409
Dry toilet facility	0.1010078	0.0003176	0.1003852	0.1016303
Pit latrine with vent (VIP)	0.1633641	0.0003464	0.1626851	0.164043
Pit latrine without vent	0.2358442	0.0002495	0.2353552	0.2363332
Chemical toilet	0.2932752	0.0021555	0.2890505	0.2974999
Bucket toilet	0.3415718	0.0009044	0.3397991	0.3433445
None	0.4107957	0.0005125	0.4097912	0.4118003

Table 5.7: Variation of probabilities across gender

	Mean	Std. Err.	[95% Conf.	Interval]
Predicted good				
Male	0.7020597	0.0007825	0.700526	0.7035934
Female	0.6267372	0.0009881	0.6248006	0.6286737
Predicted fair				
Male	0.1764402	0.0004514	0.1755556	0.1773249
Female	0.2169512	0.0005518	0.2158697	0.2180327
Predicted poor				
Male	0.1162525	0.000348	0.1155704	0.1169347
Female	0.1493891	0.000451	0.1485051	0.1502732

Table 5.8: Variation of probabilities across population group

	Mean	Std. Err.	[95% Conf.	Interval]
Predicted good				
Black African	0.6108785	0.0007079	0.609491	0.6122659
Coloured	0.828867	0.0015516	0.8258258	0.8319081
Indian/Asian	0.9192261	0.0011728	0.9169275	0.9215247
White	0.9304162	0.0003201	0.9297889	0.9310436
Predicted fair				
Black African	0.2279988	0.0004019	0.2272111	0.2287866
Coloured	0.1007722	0.0008585	0.0990896	0.1024549
Indian/Asian	0.0497591	0.0006966	0.0483939	0.0511243
White	0.0436735	0.0001918	0.0432976	0.0440493
Predicted poor				
Black African	0.15399	0.0003241	0.1533548	0.1546251
Coloured	0.0675711	0.0007003	0.0661986	0.0689437
Indian/Asian	0.0299796	0.0004888	0.0290216	0.0309376
White	0.0251356	0.0001411	0.024859	0.0254122

6. ELECTRICITY

Table 6.1: Percentage of households using electricity, 1996–2007

		Lighting	Cooking	Heating	L+C+H
1996	9,059,149	57.3	47.1	44.5	42.9
2001	11,783,798	70.2	52.2	49.9	46.8
2007	12,500,609	80.0	66.5	58.8	56.8
Change		22.7	19.4	14.3	13.9

Table 6.2: Number of households using electricity, 1996 and 2007

Use category	1996	2007	% change
Elec-Light	5,188,156	10,003,517	92.8
Cooking	4,262,156	8,311,572	95.0
Heating	4,029,745	7,353,686	82.5
Elec-L+H+C	3,889,833	7,102,136	82.6

Figure 6.1: Change in the proportion of households using electricity 1996–2006

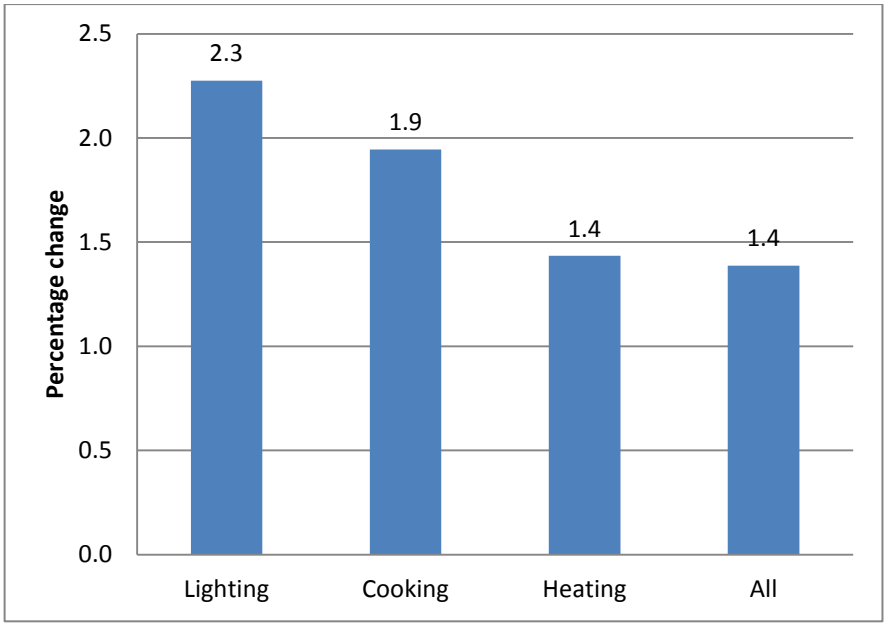
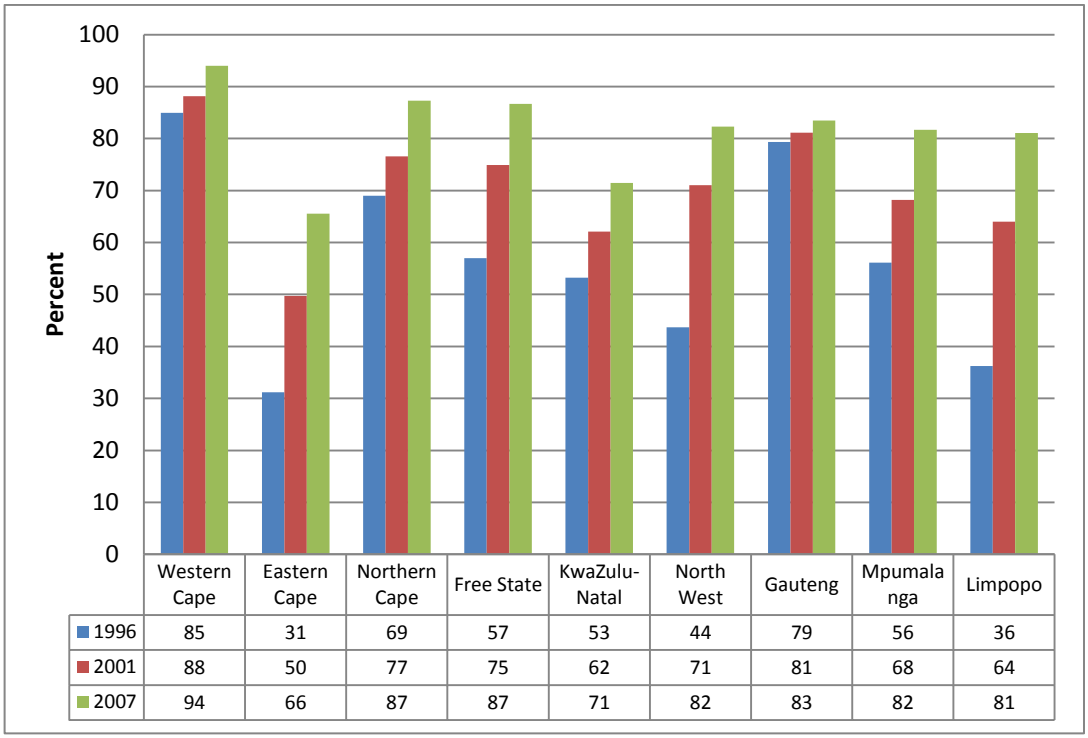
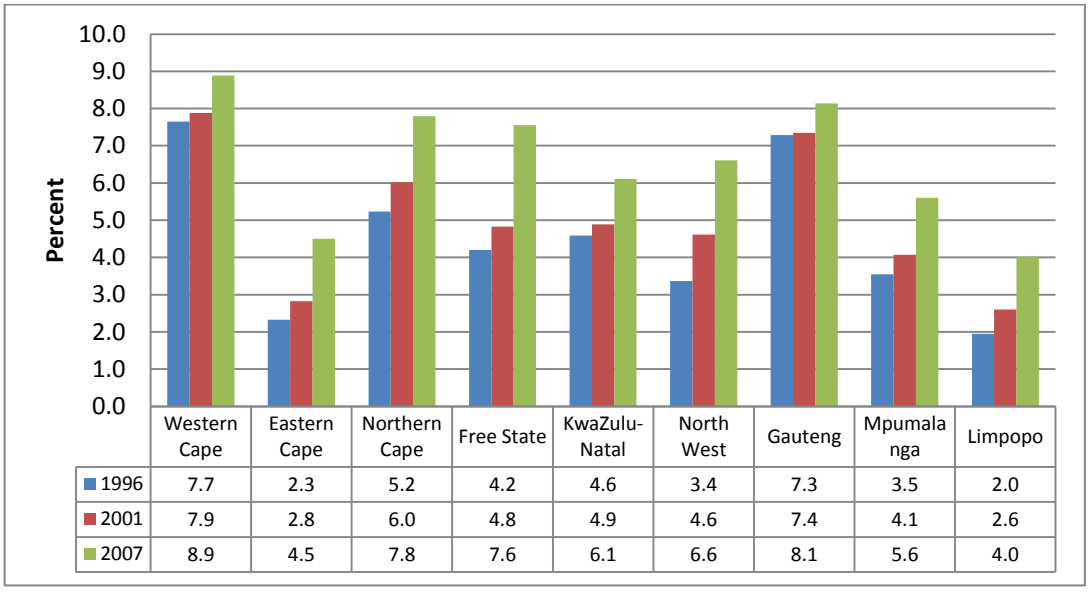


Figure 6.2: Trends in use of electricity for lighting, 1996–2007



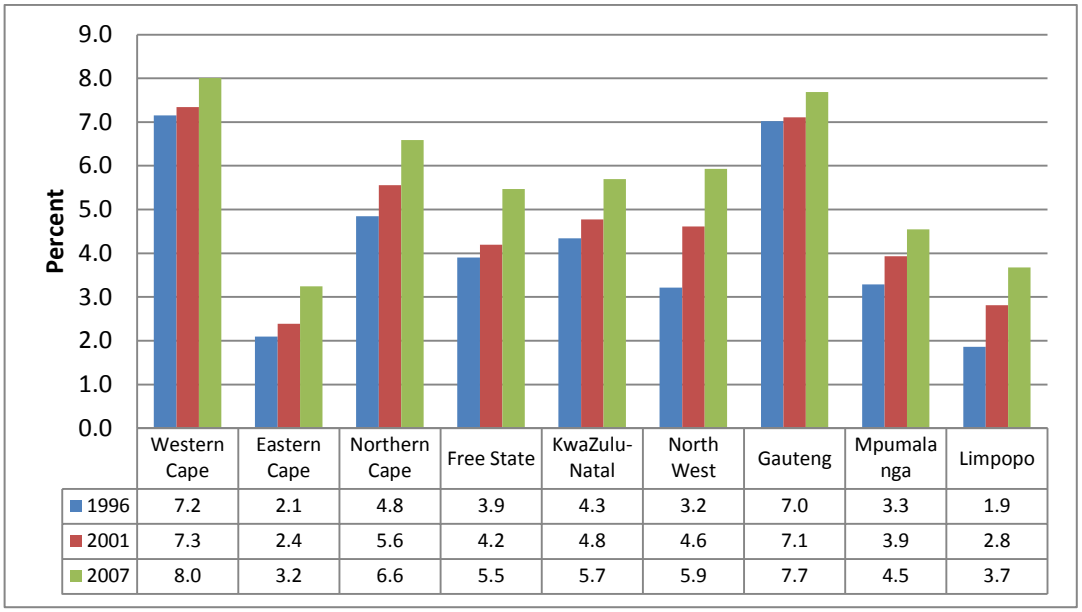
	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo
1996	85	31	69	57	53	44	79	56	36
2001	88	50	77	75	62	71	81	68	64
2007	94	66	87	87	71	82	83	82	81

Figure 6.3: Trends in use of electricity for cooking, 1996–2007



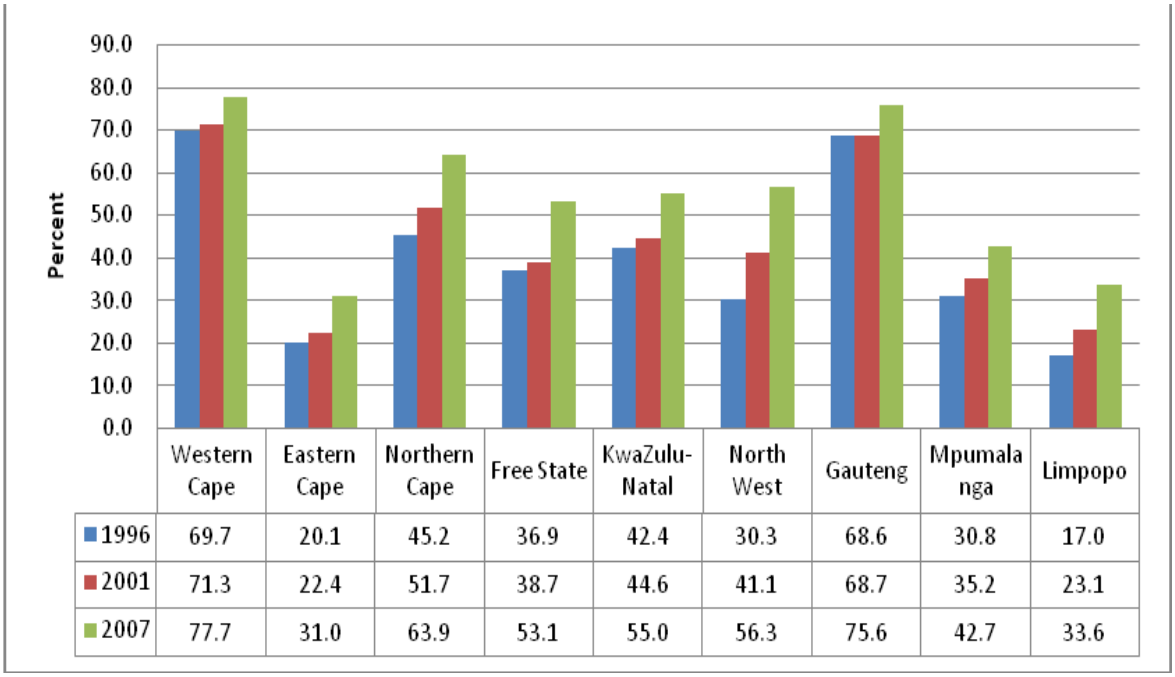
	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo
1996	7.7	2.3	5.2	4.2	4.6	3.4	7.3	3.5	2.0
2001	7.9	2.8	6.0	4.8	4.9	4.6	7.4	4.1	2.6
2007	8.9	4.5	7.8	7.6	6.1	6.6	8.1	5.6	4.0

Figure 6.4: Trends in electricity use for heating, 1996–2007



	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo
1996	7.2	2.1	4.8	3.9	4.3	3.2	7.0	3.3	1.9
2001	7.3	2.4	5.6	4.2	4.8	4.6	7.1	3.9	2.8
2007	8.0	3.2	6.6	5.5	5.7	5.9	7.7	4.5	3.7

Figure 6.5: Trends in use of electricity for L+C+H, 1996–2007



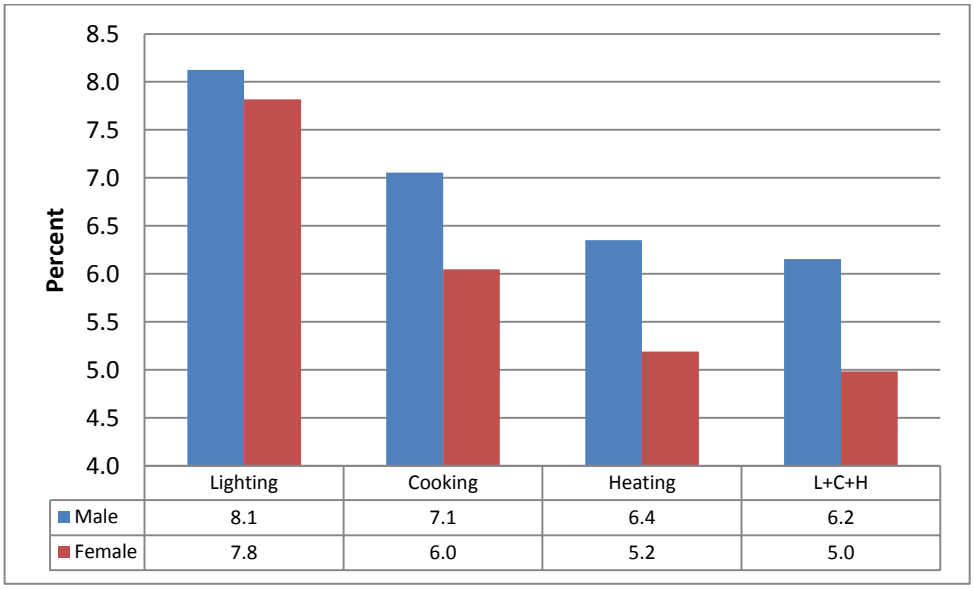
	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo
1996	69.7	20.1	45.2	36.9	42.4	30.3	68.6	30.8	17.0
2001	71.3	22.4	51.7	38.7	44.6	41.1	68.7	35.2	23.1
2007	77.7	31.0	63.9	53.1	55.0	56.3	75.6	42.7	33.6

Figure 6.6: Electricity use by rural/urban area, 1996–2007



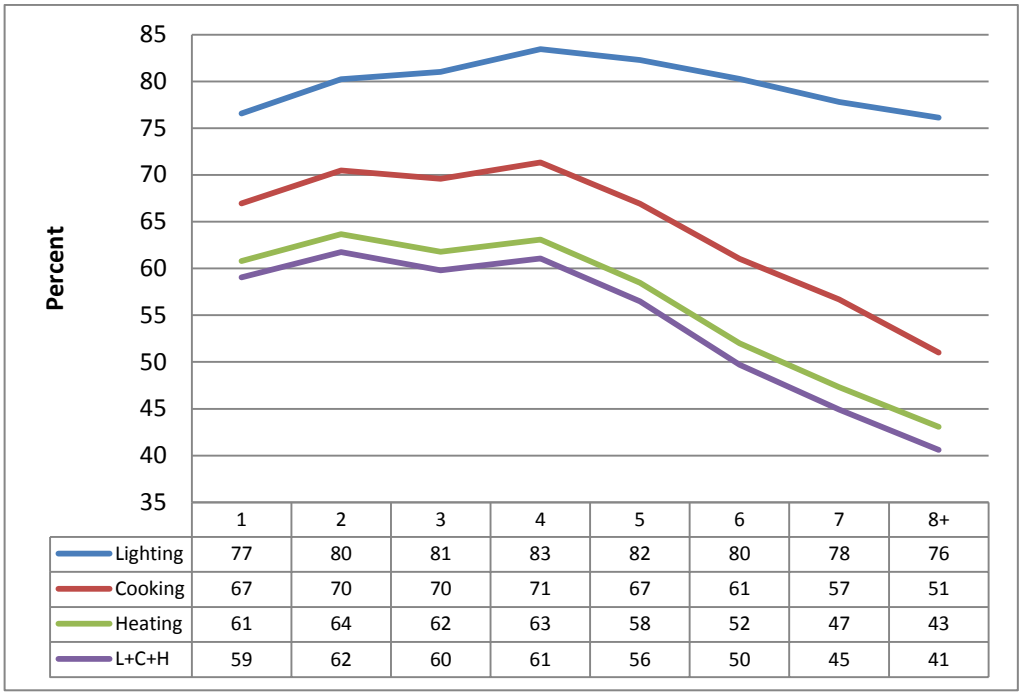
	Urban	Rural	Urban	Rural	Urban	Rural
	1996		2001		2007	
Lighting	7.7	2.8	8.2	5.2	8.7	6.6
Cooking	6.8	1.5	7.0	2.4	8.2	3.8
Heating	6.5	1.4	6.6	2.3	7.4	3.1
L+C+H	6.3	1.2	6.4	2.0	7.2	2.8

Figure 6.7: Electricity use by gender



	Lighting	Cooking	Heating	L+C+H
Male	8.1	7.1	6.4	6.2
Female	7.8	6.0	5.2	5.0

Figure 6.8: Proportion of households using electricity by household size



	1	2	3	4	5	6	7	8+
Lighting	77	80	81	83	82	80	78	76
Cooking	67	70	70	71	67	61	57	51
Heating	61	64	62	63	58	52	47	43
L+C+H	59	62	60	61	56	50	45	41

Table 6.3: Electricity use by type of dwelling unit

1996	**Number**	**Lighting**	**Cooking**	**Heating**	**L+C+H**
Formal	4,430,320	75.9	66.5	63.5	61.7
Traditional	249,223	15.2	5.1	4.3	3.6
Informal	447,809	30.8	17.3	14.6	13.0
Other	60,804	47.5	36.0	34.0	31.7
2007					
Formal	8,691,154	91.4	78.7	70.6	68.4
Traditional	1,460,297	45.7	19.2	13.9	12.3
Informal	1,817,095	51.4	42.0	34.4	32.6
Other	532,063	85.7	80.1	73.7	72.2

Table 6.4: Percentage of households using electricity by ownership of dwelling unit

	Number	Lighting	Cooking	Heating	L+C+H
Owned and fully paid	6,209,204	79.5	60.7	52.3	50.0
Owned but not yet paid	1,493,827	95.8	91.6	86.5	84.5
Rented	2,356,145	89.8	84.2	77.4	75.8
Occupied rent-free	2,338,804	62.0	48.5	40.4	38.5
Other	102,629	68.2	55.4	48.3	46.5
Total	**12,500,609**	**80.0**	**66.5**	**58.8**	**56.8**

7. SANITATION

Figure 7.1: Refuse collection, 1996–2007

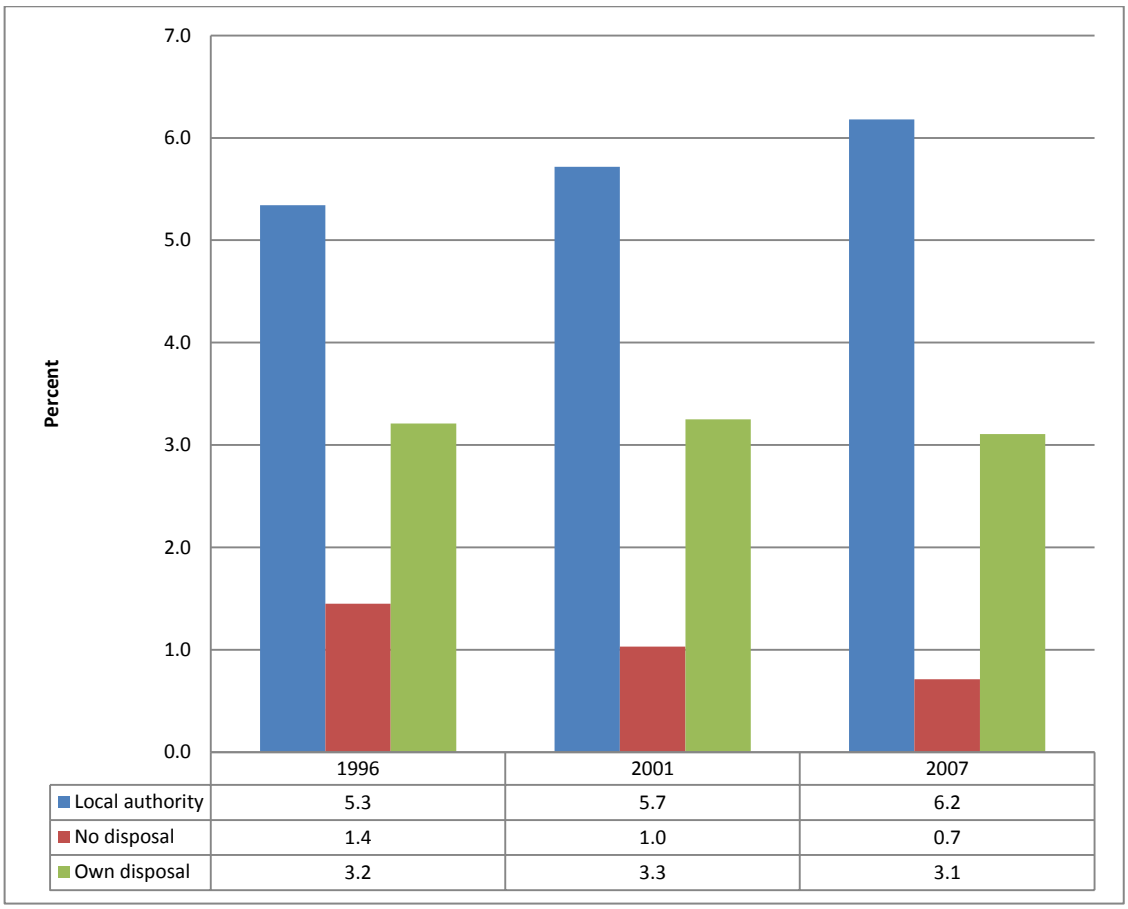
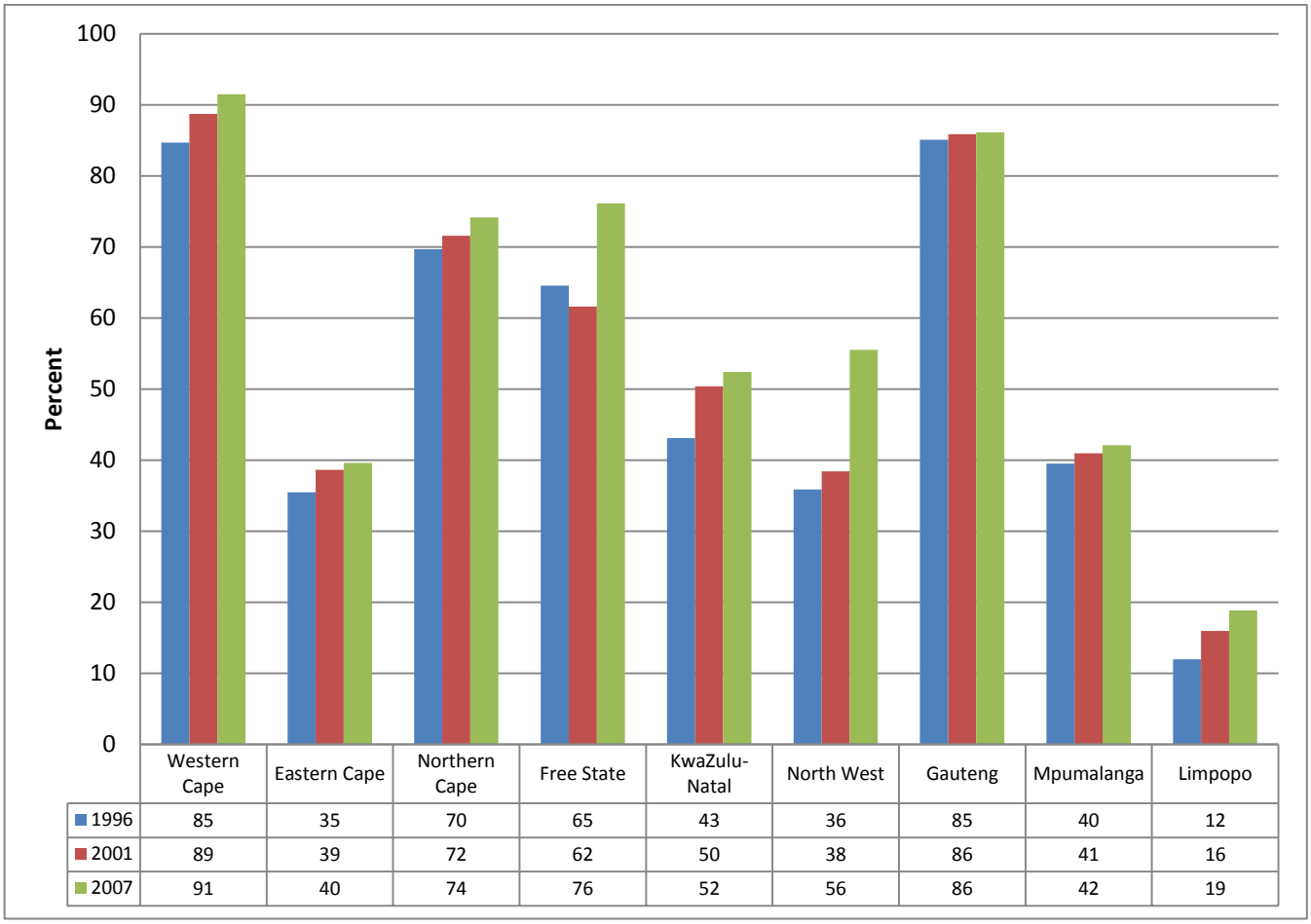


Table 7.1: Refuse disposal, 1996–2007

	1996		2001		2007	
	Number	%	Number	%	Number	%
Local authority	4,839,821	53.4	6,737,763	57.2	7,726,292	61.8
No disposal	1,312,544	14.5	1,214,540	10.3	890,951	7.1
Own disposal	2,906,784	32.1	3,831,495	32.5	3,883,365	31.1
Total	**9,059,149**	**100.0**	**11,783,798**	**100.0**	**12,500,609**	**100.0**

Figure 7.2: Percentage of household refuse collected by local authority, 1996–2007



	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo
1996	85	35	70	65	43	36	85	40	12
2001	89	39	72	62	50	38	86	41	16
2007	91	40	74	76	52	56	86	42	19

Table 7.2: Refuse disposal by province, 1996–2007

	1996			2001			2007		
	Local authority	No disposal	Own disposal	Local authority	No disposal	Own disposal	Local authority	No disposal	Own disposal
Western Cape	84.7	7.6	7.7	88.7	3.7	7.6	91.5	1.1	7.4
Eastern Cape	35.5	25.0	39.5	38.6	18.0	43.4	39.6	13.9	46.4
Northern Cape	69.7	11.0	19.4	71.6	6.1	22.3	74.1	2.9	23.0
Free State	64.5	11.0	24.4	61.6	12.9	25.5	76.1	5.1	18.8
KwaZulu-Natal	43.1	16.4	40.5	50.4	11.1	38.5	52.4	8.7	38.9
North West	35.9	12.6	51.5	38.4	10.2	51.4	55.5	8.3	36.2
Gauteng	85.1	7.8	7.2	85.9	5.0	9.2	86.1	3.5	10.3
Mpumalanga	39.5	13.7	46.8	41.0	11.6	47.4	42.1	5.9	52.1
Limpopo	12.0	22.1	65.9	16.0	16.6	67.4	18.9	13.9	67.3

Figure 7.3: Refuse disposal by rural/urban area

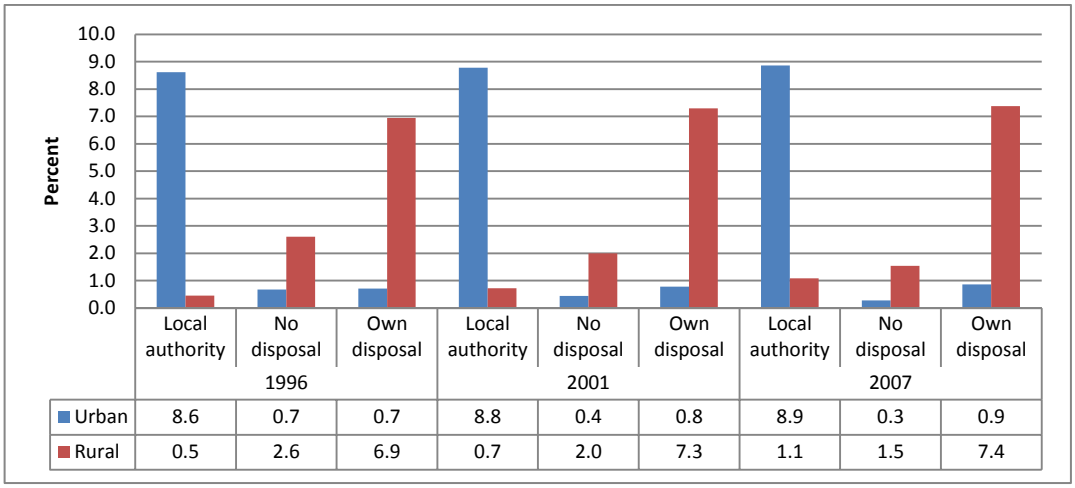
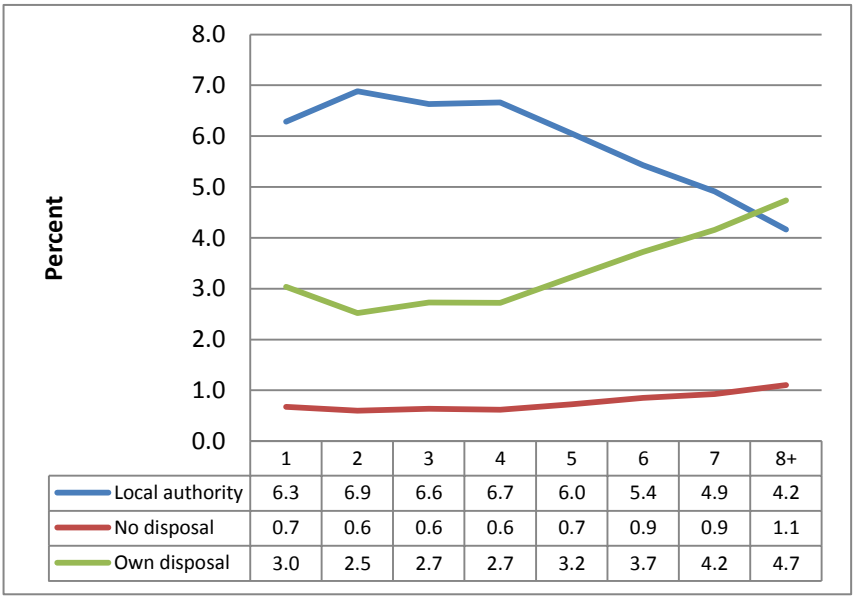


Table 7.3: Refuse disposal by geographical type and gender

	Number	Local authority	No disposal	Own disposal
Geographical type				
Urban formal	7,131,781	92.6	1.7	5.6
Urban informal	1,063,064	61.5	9.8	28.7
Tribal area	3,554,184	7.3	16.3	76.5
Rural formal	751,579	27.5	11.4	61.1
Gender				
Male	7,473,582	66.6	6.3	27.1
Female	5,027,027	54.7	8.4	36.9

Figure 7.4: Refuse collection by household size



	1	2	3	4	5	6	7	8+
Local authority	6.3	6.9	6.6	6.7	6.0	5.4	4.9	4.2
No disposal	0.7	0.6	0.6	0.6	0.7	0.9	0.9	1.1
Own disposal	3.0	2.5	2.7	2.7	3.2	3.7	4.2	4.7

Table 7.4: Refuse disposal by type of dwelling unit (1996, 2007)

	Number	Local authority	No disposal	Own disposal
1996				
Formal	5,836,507	67.0	8.6	24.4
Traditional	1,641,692	3.7	31.7	64.6
Informal	1,452,864	56.1	17.3	26.7
Other	128,087	43.6	29.5	26.9
2007				
Formal	8,691,154	71.3	4.1	24.6
Traditional	1,460,297	6.8	21.7	71.5
Informal	1,817,095	59.1	10.8	30.1
Other	532,063	66.5	4.8	28.7

ANNEXURE 2: DUMMY VARIABLES CREATED FOR PCA

Acces to water

compute piped_in = 0.

if H03_Water_Access = 1 piped_in = 1.

compute piped_yard = 0.

if H03_Water_Access = 2 piped_yard = 1.

compute piped_public = 0.

if H03_Water_Access = 3 piped_public = 1.

compute other_water = 0.

if (H03_Water_Access ge 4 and H03_Water_Access le 9) or (H03_Water_Access = 0) other_water = 1.

Type of dwelling

```
compute modern = 0.

if H01_Hu = 1 modern = 1.

if H01_Hu = 3 modern = 1.

if H01_Hu = 4 modern = 1.

if H01_Hu = 5 modern = 1.

if H01_Hu = 8 modern = 1.

if H01_Hu = 11 modern = 1.

compute traditional = 0.

if H01_Hu = 2 traditional = 1.

compute informal = 0.

if H01_Hu = 6 informal = 1.

if H01_Hu = 7 informal = 1.

if H01_Hu = 9 informal = 1.

if H01_Hu = 10 informal = 1.

compute other_housing = 0.

if H01_Hu = 12 other_housing = 1.
```

Energy for cooking

compute el_gas_ck = 0.

if (H07_Cooking = 1 or H07_Cooking = 2) el_gas_ck = 1.

compute parf_ck=0.

if (H07_Cooking = 3) parf_ck = 1.

compute other_ck = 0.

if (H07_Cooking = 4) other_ck = 1.

if (H07_Cooking = 5) other_ck = 1.

if (H07_Cooking = 7) other_ck = 1.

if (H07_Cooking = 8) other_ck = 1.

if (H07_Cooking = 9) other_ck = 1.

Energy for heating

compute el_gas_ht = 0.

if (H08_Heating = 1 or H08_Heating = 2) el_gas_ht = 1.

compute parf_ht=0.

if (H08_Heating = 3) parf_ht = 1.

compute other_ht = 0.

if (H08_Heating = 4) other_ht = 1.

if (H08_Heating = 5) other_ht = 1.

if (H08_Heating = 7) other_ht = 1.

if (H08_Heating = 8) other_ht = 1.

if (H08_Heating = 9) other_ht = 1.

Energy for lighting

compute el_gas_lt = 0.

if (H09_Lighting = 1 or H09_Lighting = 2) el_gas_lt = 1.

compute parf_lt=0.

if (H09_Lighting = 3) parf_lt = 1.

compute other_lt = 0.

if (H09_Lighting = 4) other_lt = 1.

if (H09_Lighting = 5) other_lt = 1.

if (H09_Lighting = 6) other_lt = 1.

if (H09_Lighting = 7) other_lt = 1.

if (H09_Lighting = 8) other_lt = 1.

if (H09_Lighting = 9) other_lt = 1.

Toilet facility

compute flush_chem = 0.

if (H06_Toilet_Facil = 1 or H06_Toilet_Facil = 2 or H06_Toilet_Facil = 6) flush_chem = 1.

compute pit_buck = 0.

if (H06_Toilet_Facil = 3) pit_buck = 1.

if (H06_Toilet_Facil = 4) pit_buck = 1.

if (H06_Toilet_Facil = 3) pit_buck = 1.

if (H06_Toilet_Facil = 5) pit_buck = 1.

if (H06_Toilet_Facil = 7) pit_buck = 1.

compute othertoilet = 0.

if (H06_Toilet_Facil = 8) othertoilet = 1.

Number of rooms

```
Compute rooms1_2 = 0.

if (H02_Rooms = '1' or H02_Rooms = '2') rooms1_2 = 1.

compute rooms3_4 = 0.

if (H02_Rooms = '3' or H02_Rooms = '4') rooms3_4 = 1.

compute rooms5_6 = 0.

if (H02_Rooms = '5' or H02_Rooms = '6') rooms5_6 = 1.

compute rooms7 = 0.

if (H02_Rooms = '7') rooms7 = 1.

if (H02_Rooms = '8') rooms7 = 1.

if (H02_Rooms = '8') rooms7 = 1.

if (H02_Rooms = '10') rooms7 = 1.

if (H02_Rooms = '10+') rooms7 = 1.
```

Refuse disposal

Compute refuse_once = 0.

if H12_Refuse = 1 refuse_once = 1.

compute refuse_less = 0.

if H12_Refuse = 2 refuse_less = 1.

compute refuse_other = 0.

if H12_Refuse = 3 refuse_other = 1.

if H12_Refuse = 4 refuse_other = 1.

if H12_Refuse = 5 refuse_other = 1.

if H12_Refuse = 6 refuse_other = 1.

Tenure status

Compute ownedhouse = 0.

if (H11_Tenure = 1 or H11_Tenure = 2) ownedhouse = 1.

compute rentedhouse = 0.

if (H11_Tenure = 3) rentedhouse = 1.

compute rentfree = 0.

if (H11_Tenure = 4) rentfree = 1.

compute othertenure = 0.

if (H11_Tenure = 5) othertenure = 1.

Household goods

```
compute fridge = 0.

if H10A_Fridge = 1 fridge = 1.

compute radio = 0.

if H10B_Radio = 1 radio = 1.

compute television = 0.

if H10C_Television = 1 television = 1.

compute computer = 0.

if H10D_Computer = 1 computer = 1.

compute telephone = 0.

if H10E_Telephone = 1 telephone = 1.

compute internet = 0.

if H10F_Internet = 1 internet = 1.

compute post = 0.

if H10G_Postfacil = 1 post = 1.

compute cell = 0.

if H10H_Cell = 1 cell = 1.
```