

POVERTY TRAPS AND SOCIAL EXCLUSION AMONG CHILDREN IN SOUTH AFRICA

A REPORT TO THE SOUTH AFRICAN
HUMAN RIGHTS COMMISSION



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This study was commissioned and funded by the South African Human Rights Commission (SAHRC) and the United Nations Children's Fund (UNICEF) South Africa.

Acknowledgements

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- Julian May and Haroon Borat who acted on short notice and with professionalism as external reviewers to the study.
- The valuable contribution of the Steering Committee: Lindiwe Mokate, Kayum Ahmed, Lindiwe Khumalo, Karam Singh (SAHRC), George Laryea-Adjei, Adrian Shikwe, André Viviers and Alejandro Grinspun (UNICEF), Temba Masilela, Valerie Fichardt (HSRC), and Bongani Khumalo (FFC).
- Faraaz Mohammed and Nicole Breen (SAHRC) for their input and coordination of the review process.
- Ntombenhle Ngwane (SAHRC) for the administrative support.

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Suggested citation:

SAHRC and UNICEF. 2014. Poverty traps and social exclusion among children in South Africa. Pretoria: SAHRC

Obtainable free of charge from: UNICEF and SAHRC

Website: www.unicef.org/southafrica • www.sahrc.org.za.

Cover photograph: UNICEF

Editing: Kathryn Strachan

Layout: Inkfish design studio

FOREWORD BY COMMISSIONER LINDIWE MOKATE, COMMISSIONER FOR CHILDREN AND BASIC EDUCATION RIGHTS, SOUTH AFRICAN HUMAN RIGHTS COMMISSION.

With the release of the Living Conditions Survey of 2009, its data indicated wide and deeply worrisome disparities between children living in poverty and children not living in poverty, with respect to full access to such basic needs as water, sanitation, refuse removal, electricity and formal housing. The data also indicated that there were certain groups of children who suffered from such lack to a greater extent and were more deeply mired in poverty than others.

Poverty, inequality and exclusion are hallmarks of a highly iniquitous society. In order for the rights of all children to be realised, it is essential that this gap- and the resultant chasms in service delivery and overall quality of life- be removed. The child population is one of the segments of the population more prone to becoming trapped in poverty and therefore the most logical site for successful poverty-ending intervention. The publication seeks to explore the kind of intervention that would be necessary to bring this about through literature reviews and policy simulations.

This research report investigates the extent to which groups of children are caught up in the intersection of poverty and exclusion, what the characteristics of these children are and to what extent they are or are not reached by policies and the additional efforts necessary to break free from the surrounding traps.

The purpose of the report is to contribute to on-going efforts geared towards the implementation of the National Development Plan (NDP) Vision 2030. The NDP's aim to eliminate poverty in South Africa by 2030 is not feasible without a greater understanding of how some children have escaped poverty and exclusion whilst others have not, especially considering the implementation of democratic and economic reforms in the mid to late 1990s.

The South African Human Rights Commission's role in this project is as an institution firmly committed to the reduction of poverty and inequality; particularly among society's most vulnerable members. It is constitutionally mandated to promote, protect and monitor the realisation of human rights in South Africa. The rights of children are one of the focal areas of the Commission and therefore form the focus of this publication.

South Africa is currently undergoing change that will affect the state machinery and policy framework. The Commission and its partners believe that this is a timely intervention that has the capacity to make a real impact on the lives of children and their families. In addition to providing an illustration of where we currently are as a nation, the study provides a roadmap of where South Africa should focus in shaping the future of its children.

The process in developing this study has been a consultative one, and the Commission is deeply grateful to its partners for participating in this initiative. It has been a privilege to work with some of South Africa's foremost experts in the field in the compilation of this publication, which represented an important opportunity to explore and understand the dynamics of poverty traps and social exclusion, and how these phenomena might be transcended through policy choices. The Commission thus takes great pride in introducing this initiative and it is our hope that others will benefit from it in their work with children.

Children suffer greatly from poverty and are likely to endure its consequences over their lifetime if there is no means of escaping it. Being trapped in poverty does not only hinder children's growth and wellbeing but also destroys their chances of developing into productive citizens.

The South African government has made a number of strides in addressing the scourge of poverty that continues to affect more than 60 percent of children. We are encouraged by the success of initiatives such as the child support grant, which covers about 11 million children and has been found to be an effective tool in improving child wellbeing. However, there remain a considerable number of children who have not been able to escape from long-term, structural poverty, for whom other policy interventions need to be put in place.

UNICEF is pleased to have partnered with the South African Human Rights Commission in conducting this study, which sheds light on the extent and causes underlying the persistence of poverty traps and social exclusion among South African children. The report highlights the conduits for child poverty traps in the domains of health, education, wealth and assets, family and social networks, and space. It analyses how factors playing out in each of these domains interact to trap children in poverty, and explores policy options for addressing existing challenges to overcoming chronic poverty.

We are hopeful that the findings of this study, which reveal the existence of a considerable number of children who are trapped in poverty and socially excluded, will be used to address priorities set in the National Development Plan, and thereby help realise children's rights to social security and to an adequate standard of living, as enshrined in the Convention on the Rights of the Child, the Constitution of the Republic of South Africa, and national legislation.

UNICEF will support every effort of the Government of South Africa and other stakeholders to create an enabling environment for children's development and ensure their wellbeing.

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Adult: person aged 18 or older.

Child: person younger than 18 years.

Chronic poverty: poverty lasting for extended periods (longer than 5 years) and that may persist indefinitely.

Early childhood development: activities aimed at stimulating cognitive, social and emotional development in children during their early-life and preschool.

Early life: defined as the first 3 years of life (unless otherwise stated in the text)

Money-metric poverty line: a poverty line, defined at some monetary value, that splits a given sample of individuals (or households) into poor and non-poor categories.

Multidimensional poverty index: a summary poverty measure that accounts non-monetary deprivation and may include indicators of health, education, life satisfaction, asset holdings, employment status or other capabilities that are all assigned weights and then aggregated to give a single (non-money-metric) measure of deprivation.

Poverty trap: any self-reinforcing mechanism that causes poverty to persist (Azariadis and Stachurski, 2005).

Multiple equilibrium poverty trap: a theoretical concept that describes multiple states (equilibria) present in an economy – some being at a high level of welfare and at least one at a low level of welfare. Members of a given society (or region) exhibiting a multiple equilibrium poverty trap may have some likelihood of converging to more than one equilibrium over time, depending on initial factors, the means for advancing wellbeing and the potential for accumulation of these means over time.

Obese: measured as having a BMI larger than 30.

Overweight: measured as having a BMI between 25 and 30.

Productive assets: tangible and non-tangible means that confer economic advantage.

Productive asset poverty line: the combination of productive assets that yield a household income equal to the money-metric poverty line at a given point in time.

Social exclusion: the process that excludes individuals or groups from full participation in the society in which they live (cited in Hickey and Du Toit, 2007).

Social mobility: the degree to which individuals or groups are able to move across socio-economic strata within a given society.

GLOSSARY



Single equilibrium poverty trap: a theoretical concept that describes a single low welfare economic equilibrium to which a given society (or region, or household) is expected to converge (Barrett and Carter, 2013).

Stochastically poor: household that is poor by the money-metric criterion but whose productive asset ownership exceeds the productive asset poverty line.

Stochastic poverty: where a household (or society) is observed to be poor yet they possess the productive means for sustaining a higher level of wellbeing. They are thus expected to be non-poor at some point in the future.

Structurally poor: household that is measured as poor by money-metric criterion and whose productive asset ownership is below the productive asset poverty line.

Structural poverty: a state of poverty where the means to greater wellbeing are not present (due to absence of functioning markets, infrastructure, rule of law, arable land or productive means to farm it, etc).

Stunted: measured by height-for-age, it is an indicator of chronic malnutrition during childhood years. A stunted child is one whose height-for-age is less than minus 2 standard deviations from the population median (UNICEF, n.d.).

Transitory poverty: poverty that is experienced only temporarily. A household falling beneath the poverty line due to some event that reduces income (death of the household head, say) but later overcomes this shock to wellbeing and manages to rise above the poverty line again, is said to have experienced transient poverty (sometimes it is defined as poverty that lasts for periods less than 5 years).

Underweight: measured as having a BMI less than 18.5.

Wasted: an indicator of extreme malnutrition; someone is wasted when their weight-for-height is less than minus 2 standard deviations from the population median.

ABBREVIATIONS

ANA: Annual National Assessment

ARV: Antiretroviral

BMI: Body-mass Index (measured as an individual's weight (kg) divided by the square of her height)

CAPS: Curriculum Assessment Policy Statement

CCT: Conditional Cash Transfers

CSG: Child Support Grant

CSIR: Centre for Science and Industrial Research

DBE: Department of Basic Education

DHS: Demographic and Health Surveys

DSD: Department of Social Development

DWCPD: Department of Women, Children and People with Disabilities

EA: Enumeration Area

ECD: Early Childhood Development

FA: Familias en Accion (translation: Families in Action)

FAS: Foetal Alcohol Syndrome

FASD: Foetal Alcohol Spectrum Disorder

FFC: Fiscal and Financial Commission

GHS: General Household Survey

HRC: Human Rights Commission

HSRC: Human Sciences Research Council

ABBREVIATIONS

ICT: Information and Communication Technology

IES: Income and Expenditure Survey

INP: Integrated Nutrition Programme

IPUMS: Integrated Public Use Microdata

KIDS: KwaZulu-Natal Income Dynamics Survey

LOLT: Language of Learning and Teaching

MCA: Multiple Correspondence Analysis

MPI: Multidimensional Poverty Index

MRC-UNISA: Medical Research Council – University of South Africa

NCS: National Curriculum Statement

NDoH: National Department of Health

NDP: National Development Plan

NIDS: National Income Dynamics Survey

NSES: National School Effectiveness Study

OECD: Organisation for Economic Co-operation and Development

ABBREVIATIONS

OLS: Ordinary Least Squares [Regression]

PCA: Principal Components Analysis

PIRLS: Progress in International Reading Literacy Study

PROGRESA: Programa Nacional de Educación, Salud y Alimentación (translation: Education, Health, and Nutrition Programme)

PSLSD: Project for Statistics on Living Standards

PTSD: Post-traumatic Stress Disorder

RNCS: Revised National Curriculum Statement

SACMEQ: Southern and Eastern African Consortium for Monitoring Educational Quality

SAIDE: South African Institute for Distance Education

SASSA: South African Social Security Agency

Stats SA: Statistics South Africa

TIMSS: Trends in International Mathematics and Science Study

UCT: Unconditional Cash Transfers

UNESCO: United Nations Educational, Scientific and Cultural Organisation

UNICEF: United Nations Children's Fund

OVERVIEW



In the two decades since South Africa's transition to democracy, the country has experienced considerable success in reducing poverty, both in money terms and in multi-dimensional forms of deprivation such as lack of access to important services such as water and sanitation. This applies particularly to children, who in a period of declining fertility were also the nominal beneficiaries of the Child Support Grant, which contributed much to a strong decline in money metric poverty and in the number of children who go to bed hungry.

Given this decline in poverty and deprivation, it is disturbing that there is still such widespread evidence of considerable and deep-rooted poverty amongst children. The first aspect of this research project particularly set out to do was to determine to what extent children are still caught in a poverty trap, i.e. a "self-reinforcing mechanism which causes poverty to persist", or are socially excluded from important aspects of economic and political life. As poverty traps are self-perpetuating, they require strong interventions to break the cycle and provide ways for children to escape poverty and embark on a course towards a different future.

The research covered a wide spectrum. It included a vast sweep of international literature, and drew on existing empirical evidence on child poverty and poverty traps, as well as gathering new evidence from South African datasets such as household surveys, censuses, school tests, and demographic and health surveys. The research is presented under five broad headings relating to the dimensions that may serve as poverty trap mechanisms, viz. health and nutrition, education, wealth and assets, social networks and family, and geography. Substantial new research was conducted on aspects such as poverty traps, multiple deprivation, migration, and low learning trajectories.

The picture that emerges from this empirical overview is in many respects a worrying one. Though the number of children affected by poverty has declined, factors such as weak education and poor parenting mean that many children still remain in the grip of poverty and there is little evidence that this situation is improving. The spatial distribution of poverty has also not changed much since the political transition, with poverty being particularly prevalent in regions that were part of the former homelands.

Addressing these problems should be a central concern in order to provide children with a way out of the pattern of inherited poverty and limited future prospects.

For this reason, the report offers a number of recommendations for government that would reduce poverty and help to break poverty traps. Two sets of recommendations that stand out relate to education. The first set relates to Early Childhood Education, where there is evidence that community based Early Childhood Development (ECD) facilities and Grade R in schools do not pay enough attention to education quality. In this field, recommendations are made regarding inter alia strengthening the background of ECD teachers so that they are better able to provide the cognitive development that young children need. The second set of recommendations relates to the early school years or Foundation Phase (up to Grade 3). Here it is recommended that a widely accepted goal that everyone can identify with should be identified as a central priority, and that this should be that every child should read (or in a less abbreviated form: By age 10, every child should be able to read fluently in his or her home language). This would focus energies in the Foundation Phase in the same way as the matric examinations do in high school. Together, these two recommendations could improve the low learning trajectories exhibited by many poor South African children, and thereby help to extricate a generation of children from a cycle of poverty.

South Africa has made considerable progress over the past two decades in reducing the extent of poverty and social exclusion and their effect on children. The country's political transition has fundamentally changed the context within which these conditions occur. The dismantling of apartheid has opened up society, giving most people the opportunity to participate in the labour market. It has given them freedom of movement to seek alternative economic opportunities, and offered them ways to interact with policy processes and service delivery decisions. Important social trends, such as rural-urban migration and a sharp decline in fertility, have also offered many people a better life. Total fertility (the average number of children likely to be born to women during their reproductive years if fertility in every age group remains at its current levels) has declined to 2.34, not far above replacement level, according to Stats SA's 2013 mid-year population estimates. As a result, women's options have expanded, their labour market participation has increased, and fewer unplanned children have been born. Broad social changes such as urbanisation, higher educational attainment, increased labour market opportunities for women, and changes in relationship arrangements and expectations about fertility, have also contributed to the marked decline in fertility (Burger, Burger and Rossouw, 2012).

Under these new circumstances, poverty has declined, particularly since 2000, and opportunities have expanded. The initial success in providing formal housing and municipal services, including water, electricity and sanitation, has fundamentally changed living conditions for large numbers of people, and has hastened the shift to modern consumer patterns. Importantly, educational expansion has meant that almost all children are now at school until at least the age of sixteen. The massive expansion of the grant system has improved the financial situation of millions of poor families in urban and rural areas and helped to reduce not only money-metric poverty but also hunger among children as reported in household surveys.

Nevertheless, twenty years into South Africa's democracy, race is still a powerful predictor of deprivation and, consequently, future deprivation for today's children. Despite remarkable progress in reducing the effect of deprivation for many of its poorer citizens, the country is still plagued by poor education quality, high levels of unemployment, particularly among its youth, and widespread dissatisfaction with the pace and quality of basic service delivery. The achievements, such as improved access to basic services, near universal school enrolment and the extension of the social grant system, have been almost overshadowed by the growing awareness and criticism of state inefficiency in the management of public spending. Despite government intervention in a number of forms over the past two decades, many children born to poor households continue to suffer the indignities of poverty. This often includes lack of access to adequate nutrition, clean running water or adequate sanitation. These factors reduce the likelihood of good health for poor children. Combined with poor quality schooling, the prospect of poor long-term health reinforces a cycle of deprivation from which it is hard for current and future generations to escape.

Two decades after the dismantling of apartheid, widespread inequality still exists in South Africa. The country's poverty is all the more glaring because it coexists with striking affluence and retains strong racial dimensions. While some children in South Africa live in relative luxury and have access to world class education and health services, others face threats to their development in the form of poor living conditions, poor nutrition and poor access to basic services.

The economy has not grown rapidly enough to draw the hoped for numbers of unemployed into the labour market, and those excluded are typically also marginalised in other ways, as they tend to be the rural, the uneducated, the

women and the young. Many still remain outside the mainstream economy and society, and what they are most likely to have in common is a poor education: poor in terms of both level of attainment and quality. Surveys have shown that even a fairly high level of educational attainment is no guarantee of a strong enough base of literacy and numeracy for full engagement in a modern society. Those with weak education are excluded not only from many economic opportunities but also from full participation in society.

Children born into poor and socially excluded families are at high risk of being caught in a poverty trap. They have little chance of getting a good education, because the school system of most poor people is weak. When they leave school, the sluggish demand for unskilled workers means that few will find or hold a job, and those who do succeed will not be well remunerated or securely employed.

Other problems the new South Africa has not yet overcome are crime, substance abuse, household violence, and abuse of women and children. Representative data are hard to come by, but the prevalence of these social pathologies is well documented in the press and official reports. According to the Victims of Crime Survey conducted by Stats SA in 2011, 23.2% of households said their children were prevented from playing in the area of their home because of crime, and 15.7% said that crime prevented them from allowing their children to walk to school (Stats SA 2012). Altogether, 730 000 (5.4% of all households) had been victims of burglary and 200 000 of home robberies (1.5%). Household structures are weak: in 2011, only 46% of children under fifteen lived with both their biological parents, and more than 11% lived with neither biological parent.

Poor South African children, who are for the most part black or coloured and located in the historically disadvantaged part of the basic education system, are at risk of perpetuating the poverty cycle into which they were born. Despite South African education being prioritised by all governments since 1994 as the way for children to escape poverty, the 2007 Southern and Eastern African Consortium on Monitoring Education Quality (SACMEQ) survey revealed that performance differences between poor and rich South African children in reading and mathematics were much larger than between poor and rich children in other African countries (Van der Berg, 2009: 35). The data support the notion of two education systems operating in South Africa: one well-resourced and high-performing, serving mainly the richest quarter of children, and the other a low-performing system, inefficient at converting resources into academic performance, and serving the poor (Spaull, 2011). Most of the differences between these two subsystems can be traced back to socioeconomic circumstances. Economic advantage or disadvantage determines not only which schools children end up in, but also how prepared they are physically, socially and cognitively for school and how well they fare as they progress through the school system. Because economic advantage is still highly correlated with race, most black and coloured children, because they have less educated parents with fewer resources, enter the school system with a significant potential academic disadvantage relative to their white peers.

While access to health services seems to have improved since the end of apartheid (approximately 90% of births take place in a health facility of some sort), the quality of these services leaves much to be desired. The maternal mortality has almost doubled since 1990, while under-five mortality has remained at its 1990 level (SAHRC & UNICEF, 2011). The proportion of children below the age of five with vitamin A deficiencies doubled between 1994 and 2005, increasing their risk of disease (Berry, Hall and Hendricks, 2010). Furthermore, HIV and AIDS has left a large imprint on South African society in the form of many deaths and the resultant loss of family earnings, as well as children orphaned, morbidity and the need for large scale treatment of those living with HIV.

INTRODUCTION

A large number of ongoing interventions attempt to deal with all these problems, and many detailed recommendations on implementation and policy can potentially be made over this broad spectrum. That is, however, not the purpose of this report. Rather, the focus is placed on understanding the phenomena of poverty traps, conceptually and empirically, and drawing from both the international and local literature (respectively in Chapters 1 and 2), whilst also adding important new empirical content to better understand the South African situation (Chapter 3). Chapter 4 then investigates case studies of a range of interventions used elsewhere, mainly in Latin American countries. The chapter culminates in two simulation exercises relating to social grants and school education respectively, and provides additional background against which recommendations are made in the final chapter (Chapter 5). The analysis of the preceding chapters leads to the conclusion in Chapter 5 that there are two major areas in particular in which there has been little progress, and that this sharply curtails the possibilities of children from poor families escaping poverty, and contributes to the likelihood that they will be excluded from mainstream society and important processes. The first is the poor educational foundation which, as early as the end of the Foundation Phase at school, effectively leaves many poor children with little prospect of obtaining a proper education. The second area covers the weak social structures and associated problems of violence and abuse. For the problem of a weak educational basis, two areas for intervention suggest themselves, namely improved Early Childhood Development interventions, and strengthening the Foundation Phase in schools. For the weak social structures, the main policy recommendation is to strengthen social welfare services. Recommendations are also made in other areas.

INHERITED POVERTY



The industrial revolution precipitated an unprecedented increase in the welfare of the average household (albeit at different paces), with many countries experiencing notable growth in 'middle classes'. Along with rising average education levels, the awareness of deprivation has become more acute amongst those who find themselves left-out by the rising tide. While some households manage to sustain a life free of material deprivation, the welfare of others fluctuates between poor and non-poor over their lifespans and others still may never come to know a life not lived in poverty. It is now widely accepted that the poor are not homogenous, that individuals and groups are poor in different ways and for different reasons, and that poverty is best understood as a multidimensional concept. There is also greater recognition that the poor are not necessarily so by their own making, or as a result of mere inaction. The claim that through hard work and sacrifice 'anyone can make it' is empirically untenable. Moreover, it also cannot be operationalised so as to guide policymakers who aim to ameliorate the circumstances of poor households. Due to a confluence of inhibiting factors, individuals or households often lack the capability to lift themselves out of poverty, their every effort frustrated by the tight hold of poverty that may persist for generations. These poverty traps work to ensure that poor households remain locked in a long-term low welfare state, yet in many cases these elements can be mitigated by well-targeted and well-designed policy interventions.

Before an appropriate intervention can be determined, a sound understanding of the type of poverty being targeted and its associated mechanisms is required. It is therefore important to distinguish between such concepts as transient poverty, chronic poverty, structural poverty, and multiple equilibrium poverty traps. This chapter develops the latter concept by reviewing the related international research, and goes on to describe the various mechanisms that characterize the condition.

The observation that elevation out of a deprived existence is not inevitable has naturally stimulated the interest of development researchers who have long asked, as a corollary to growth research, how the transition from poverty to prosperity is obstructed. Researchers' attempts at answering this question have contributed to literature that (i) attempts to understand theoretically the mechanisms underlying poverty persistence, (ii) describes empirical investigations that aim to identify these specific mechanisms for a particular country or group, and (iii) develops appropriate policy recommendations that may release the poor from the grasp of a poverty trap. Amongst the more important findings emerging from this literature is the evidence indicating that the best chance of breaking poverty traps relies on early-life intervention. In particular, investment in children at the earliest stages of development is now seen as a critical policy intervention for positively influencing later welfare (Currie and Vogl, 2012; Heckman and Masterov, 2007)¹. This linkage between tomorrow's economic development and a healthy and nurturing environment for today's children is what underpins UNICEF's (2013: 2) "call to action to put children at the centre of sustainable development".

This chapter presents a summary of the literature relating to each of the three areas mentioned above. The survey is split into seven subsections, beginning with the conceptual definition of 'poverty traps'. The next five sections present a summary of the literature pertaining to five mechanisms identified as potential causes of poverty traps. These include adverse health status, inferior education, family and social conditions, geographical location, and inadequate means for asset accumulation.

¹ This idea is sometimes conveyed with the nomenclature; 'pre-distribution'.

1.1 DEFINING POVERTY TRAPS

A poverty trap may be defined as “any self-reinforcing mechanism which causes poverty to persist” (Azariadis and Stachurski, 2005: 326)^{2,3}. This definition portends a distinction between the concepts of poverty trap and chronic poverty. Chronic poverty suggests only the observation of a given unit below the poverty threshold over sequential periods while a poverty trap recognises that a particular mechanism sustains this condition. Chronic poverty is thus necessary, but not sufficient, for the existence of poverty traps. It should also be noted that the temporal dimension is not the preeminent measure for defining poverty traps. It is merely required that the presence of a poverty trap mechanism accommodates a recurrence of poverty in successive periods. Poverty could be transient in nature, whereby today’s poor may experience a rise in welfare that transitions them to a non-poor state at some future date. If a poor to non-poor transition takes place in the absence of some exogenous factor, such as some policy intervention, poverty is temporary, in which case an appropriate policy response is to either insure vulnerable households against falling below the poverty line or providing measures that hasten the exit once they have fallen into poverty. While some researchers establish a time threshold that separates the transient from the chronically poor (Hulme and Shepherd, 2003), such a threshold is inherently arbitrary and is not the primary determinant for a particular policy intervention. Of course, time is critical in the identification stage though its function is merely to indicate that someone remains poor. The poverty trap literature attempts to go further and uncover why people remain poor. Typically, poverty traps research require panel data sets that track the status of individuals or households over time so that the important factors that might explain persistent poverty can be identified. Once sufficient evidence emerges for the existence of a poverty trap (other than the measured period for which an individual or household is poor), the time dimension is a secondary consideration for the implementation of countervailing policies.

Poverty traps bear several features worth expounding on. They operate at various levels, affecting individuals, communities or even entire nations (Barret and Carter, 2013). Poverty traps may be ‘single equilibrium’ or ‘multiple equilibrium’ in nature. In the former scenario the mechanisms giving rise to poverty traps are of a systemic nature, arising from the institutional setting in which economic activity occurs or, perhaps, geographic and spatial factors shared by the majority of a given country’s population. In such a situation it is likely that the poverty trap extends to all individuals regardless of differences in innate ability. Similarly, a condition intrinsic to particular individuals may preclude non-poor welfare outcomes for these persons, regardless of the institutional setting they find themselves in. The phrase ‘single equilibrium’ suggests that given all the structural conditions of the economy, growth that brings about improvements in the welfare of the general population cannot occur endogenously. The ability to escape the clutches of poverty is simply not there. Sub-Sahara African countries have, for instance, been argued to be stuck in a single equilibrium poverty trap (Sachs et al., 2004). Whereas standard neoclassical growth models would indicate that poor regions should, with time, exhibit growth rates higher than their richer peers as capital moves to regions where labour is cheap and returns potentially higher, and therefore increase their living standards quickly, this has not occurred in many African countries. Sachs et al. (2004) suggest that various factors – including adverse climates, inadequate infrastructure, being landlocked – constrain capital investment in these economies, which in turn maintains a capital to labour ratio beneath a level required to shift it onto a self-sustaining growth path.

² Poverty here, following Fajth and Holland (2007: 5), is viewed as a multidimensional phenomenon that encompasses deprivation across a range of factors including income and other capabilities such as health, education, labour market exclusion, etc.’.

³ Banerjee and Duflo (2011: 11) offer this definition; “There will be a poverty trap whenever the scope for growing income or wealth at a very fast rate is limited for those who have too little to invest, but expands dramatically for those who can invest a bit more.” The definition used above differs from theirs only in that it allows mechanisms other than wealth, assets or finances to underpin poverty traps (although investments too may be broadly defined).



Multiple equilibrium poverty traps differ from single equilibrium traps in that diverging welfare outcomes may be observed within the given country or region under consideration. Furthermore, in such instances the particular welfare outcome that obtains for a given individual or household is not solely dependent on the invariant characteristics of the person or her environment (Barret and Carter, 2013). Multiple equilibrium traps present at least two possible states that households or individuals will converge towards over their lifetimes – with at least one of these serving as a low-welfare attractor and at least one other serving as a non-poor attractor. This implies that some threshold exists in the space between attractors. It is more or less expected – in a free market economy – that differences in life outcomes can be explained by differences in ability, initial resources and how these are combined over the lifecycle to develop skills and accumulate more resources. The presence of a threshold between two attractor basins (one being low-welfare and the other not) implies that individuals on either side of such a threshold – but close to it – could exhibit like characteristics yet find themselves on different welfare paths. A feature of multiple equilibrium poverty traps is that they violate the principle of horizontal equity, meaning that the initially similar may follow diverging welfare paths over their life-course (Barret and Carter, 2013). The path divergence being an outcome not of differences in innate ability but rather resulting from differences in the opportunities they are exposed to throughout their respective lives. In these instances households can be shifted from a poor to a non-poor state of welfare over their life-course through various policy interventions depending on the nature of the mechanisms keeping them poor. Several such mechanisms have been explored in the literature and are discussed in the sections that follow.

It is possible for single equilibrium and multiple equilibrium poverty traps to coexist in the same economy (Barret and Carter, 2013). This simply implies that some households, perhaps with low ability, simply cannot develop enough skills or acquire sufficient productive assets to advance to a non-poor state over time. There may also, in this same population, be another set of households with greater ability yet with different initial endowments of productive assets. For this group a multiple equilibrium poverty trap may hold where even small differences in their initial endowment may see a given household end up as either poor or prosperous. The fact that the two may coexist complicates the empirical identification of multiple equilibrium poverty traps⁴

While the distinctions highlighted here ('chronic poverty' versus 'poverty trap', and 'single' versus 'multiple equilibrium' traps) may seem of mere academic interest, they do have practical relevance. Interventions aimed at improving the long-term wellbeing of people identified as being stuck in a poverty trap are likely to differ depending on whether they are in a single or multiple equilibrium trap. It is important to understand the mechanisms that require the investment. In the case of a multiple equilibrium trap small, one-off investments could transfer households across a threshold that places them on a non-poor trajectory. Single equilibrium poverty traps, on the other hand, are more complex to combat and require large scale interventions that alter the structural conditions of the economy.

1.2 TRANSMISSION MECHANISMS OF POVERTY TRAPS

Initial efforts at understanding poverty traps focussed on the macro scale. The earliest exploration of poverty traps were intended to explain the divergent growth paths of economies around the world – and were later used to analyse poverty traps at the micro-level⁵. A strand of literature (early growth literature) contended that economies lagging in growth should converge to that of other high growth countries over time as investment moved to its

⁵ See Banerjee and Duflo (2011: 11).

highest return. The observed stagnation (poverty traps) of many economies – notably in Africa and Latin America – was suggested to be a manifestation of poor policy choices by governments in these economies. Easterly (2006), for instance, argues that “bad government” is likely one of the more important correlates of poverty persistence in many developing countries. One policy implication of this argument is that both external aid to, and foreign investment in, poorly governed emerging economies are likely to be ineffective as poverty reduction strategies. Sachs et al. (2004) argue that the low ratio of capital to labour in poor countries is what mires many countries in a poverty trap. In contrast to Easterly (2006), they suggest that aid is essential for raising capital investment in poor countries so that the capital/labour ratio can surpass the poverty trap threshold and induce a self-sustaining growth path for the economy (Sachs et al., 2004: 144-145). In addition to government failure and a suboptimal level of capital investment, other poverty traps functioning at the macro scale include coordination failure which sees, for instance, productivity enhancing technologies eschewed (Hoff, 2000: 158), geographic factors such as countries being landlocked (Collier, 2007: 53), and the persistence of failing institutions which directly affect welfare outcomes (through corruption for instance). This may influence expectations of the future and have the effect of moderating aspirations within a society (Azariadis and Stachurski, 2005: 329-330).

Traditionally these and other macro theories have been the focus of development research, but more recently a vast and expanding literature explores the nature of poverty traps at lower levels of aggregation (that is, at the level of the individual, household, community, etc.)⁶. Naturally, several of the macro-level mechanisms described above also operate at a more granular level⁷. Among these are factors related to location, which can be instrumental in perpetuating poverty in some regions, even as the broader economy experiences growth in living standards (Jalan and Ravallion, 2002). Poor quality institutions too can have an impact at the community level. Under a broad definition, institutions comprise all formal systems such as state legislation and statutes, as well as less formal but popular conventions and social norms (Azariadis and Stachurski, 2005: 2). While the formal systems function uniformly across a given country, more informal conventions may vary by region, class, ethnicity or community giving rise to different social networks. When social networks are multiple, disparate and segregated, low level welfare outcomes emerge for a network whose members are excluded from mainstream economic and social institutions (Bowles, Loury and Sethi, 2009). These outcomes, furthermore, are enduring and constitute a poverty trap. Children are especially vulnerable to entrenched norms within a given society, but they also present a channel for ‘steering’ these norms in a more positive direction.

Poverty traps also exert their influence at the level of the individual, affecting health and education outcomes. An optimal environment for early childhood development requires investment in childcare, and access to health services and educational activities. However, these may be difficult to realise, particularly in the face of income and credit constraints.

Poverty results in poor childhood health which, in turn, reduces productivity later in adult life (Currie and Vogl, 2012). Poverty is linked to health deficiencies which arise from undernourishment (Dasgupta, 1997) and from exposure to disease (Bonds et al., 2010). Poor quality of education and low levels of educational attainment among children is another factor that may perpetuate poverty within and across generations (Barham et al., 1995). The social and family environment that children are exposed to also has a considerable influence on their life outcomes (Cunha et al., 2005). An initial social environment that hampers the skills and capabilities formation in early-childhood

⁶ It should be noted that invoking too fine a distinction between macro and micro scale poverty traps is unwarranted as overlap and interaction between these two types may occur.

⁷ Barrett and Swallow (2006) call this feature – that poverty perpetuating mechanisms may operate at a range of scales – ‘fractal poverty traps’.

shows its effect throughout the life cycle of an individual. Evidence also indicates that early differences in cognitive and non-cognitive skills among individuals diverge further over time, thus emphasising the importance of early intervention (Cunha and Heckman, 2007). Lastly, a large body of literature emphasises credit constraints as a poverty trap mechanism. This suggests that households with low incomes (perhaps at the subsistence level) are unable to undertake the investments yielding returns that are sufficient to eventually lift them out of poverty (Barrett and Swallow, 2006).

As portrayed, the poverty trap literature is somewhat diffuse. The remainder of this review narrows its focus to those poverty traps that operate primarily at the micro to medium-scale (that is, individuals, households, groups or local geographic regions)⁸. In doing so, the discussion focuses on five areas that feature prominently in the literature as conduits for poverty traps. These are health, education, wealth and assets, social networks and family, and geographic influences. All these factors are required to provide an enabling environment for children to develop the social and cognitive skills necessary to escape the cycle of inherited poverty. The next five sections further develop the argument that deficiencies in these areas can give rise to poverty traps.

1.2.1 Health

There are multiple ways in which poor health results in low welfare outcomes. Adults with poor health are more likely to stay out of work, thus reducing wage incomes; children who are unwell are less effective learners at school, thus reducing the potential returns to education; and babies born into environments where the risk of exposure to diseases and undernourishment is high, are more likely to carry any early health deficit with them throughout their lives. All these factors can potentially result in a poverty trap. The positive correlation between early childhood health status and adulthood economic status is well documented (Case, Lubotsky and Paxson, 2002). In an instructive study on the causes of the relationship between health and income in the US, Case et al (2002:1309) find that children born into poor households generally reflect higher morbidity in adulthood and, on average, would have missed more days of schooling than their wealthier peers. Their capacity for developing skills is thus compromised, with likely negative implications for their prospects in the labour market. They furthermore find that early differences in health status between poor and wealthy children become more pronounced as they age, a phenomenon which is in step with the observation that the correlation between wealth and health becomes steeper with age as well (Case, Lubotsky and Paxson, 2002: 1315). Their regression analysis preserves the significance of this positive relationship whilst controlling for several other potential explanatory variables including birth health, genetics and health insurance.

The existence poverty traps relating to health has been argued both conceptually (Dasgupta, 1997 and Bonds et al., 2010) and through empirical evidence (Sachs et al., 2004 and Strauss and Thomas, 1998). This evidence is necessary for making the case for expenditure when drawing up policies aimed at breaking poverty traps. Bonds et al. (2010: 1185) suggest that the evidence from the epidemiological literature has established beyond doubt that poverty stricken individuals and households face greater risk of contracting disease. There remains, however, scepticism towards the causal link between disease and economic outcomes. It is, for instance, suggested that the failure to act against infectious disease reflects an underlying institutional failure which is at the root of a given country's welfare outcomes more generally (Banerjee and Duflo, 2011: 44). In such cases, sceptics have argued, implementing policies that aim simply to reduce the burden of disease without addressing other institutional maladies will be unlikely to avert the poverty propagating mechanism (poor or failing institutions), and may result in healthier people remaining

⁸ This decision reflects the need to manage the scope of inquiry and analysis. While structural reforms, such as changes to industrial policy or the relaxation of labour laws, that may advance economic growth are important for alleviating persistent poverty, skills development among the members of a given society is suggested as the surest channel out of poverty.

stuck in a poverty trap despite the increase in capabilities afforded by the rising health outcomes. These arguments are at odds with the extant empirical evidence.

Sachs et al. (2004: 134), emphasising the welfare effects of malaria specifically, show that, controlling for various factors, the disease burden has been more significant in certain regions (mainly in Africa) than in others. They argue that the disease is directly related to the chronic poverty observed in these areas and, moreover, that officials there simply do not have the resources to effectively control the problem. This is supported by further evidence from an experiment undertaken in a malaria-endemic region of Sri Lanka in which pupils were randomly assigned to receive either a malaria prevention drug (chloroquine) or a placebo (Fernando et al., 2006). Children receiving the drug were less prone to school absenteeism and performed better, on average, in tests than did pupils who received the placebo. The argument that disease entraps afflicted people in poverty is generalized by Bonds et al. (2010), who suggest that the empirical evidence linking disease exposure with poverty is significant while the World Health Report of 2004 (World Health Organisation, 2004) states that it may even have been underestimated.

A second pathway for ill-health to induce perpetual poverty relates to undernourishment. Undernourishment constricts the physical capacity for work. That is, weak people cannot work as productively as those who are stronger. The less productive are also likely to receive lower incomes⁹. Yet higher incomes are required for improved nutrition and, in this way, nutritional deficiency may instigate a cycle in which the poor stay poor¹⁰. Research undertaken to evaluate the connection between nutrition and wage earnings spans the economics, nutrition science and epidemiological disciplines. The body of research generated from these disciplines has been critically evaluated in Strauss and Thomas (1998) who discuss theoretical issues¹¹ as well as complications related to the evaluation of the empirically derived¹² link between nutrition and development.

Dasgupta (1997) attempts to develop the argument more formally. He develops a model in which individuals similar in other characteristics may face divergent welfare outcomes on the basis of their relative health status. Health in this model is viewed as a function of nutritional intake and is measured, as is common in this literature, by the body-mass-index (BMI)¹³. Child nutrition turns out to be particularly important as one implication of his model is the prediction that both past and current undernourishment is important for explaining reduced capacity for work (Dasgupta, 1997: 20). More particularly, it is stated that the circumstances prevailing in the first three years of life have been shown (in the epidemiological literature) to have a great bearing on the mature physique – and, by implication, work capacity – of an individual.

Dasgupta (1997) also draws on the nutritional science literature in arguing for the existence of a nutrition-based poverty trap. In this regard both physical and behavioural implications of undernourishment are emphasised. The physical implications relate to the simple argument presented above: reduced energy intake by poor people compel them to conserve energy and reduce effort, making them less productive, with the expected consequences for incomes and work status. The behavioural implications relate to the observed lethargic behaviour of children suffering from malnourishment and its implications for the development of their human capital. Dasgupta (1997: 20-23) argues that such children tend to be less active and less engaging with their environments than their more healthy peers. Children's withdrawal from activity has a lasting impact on their behaviour that is difficult to reverse in later life. Further, the impact of undernourishment on cognitive ability and learning is even more severe over the long term (Nelson, 2000) and is one of the reasons for emphasising nutritional poverty traps among children as opposed

⁹ At the extreme, the less productive are rationed out of the labour market.

¹⁰ The impact of undernourishment is more severe than simply reducing expected future earnings. Rees, Chai and Anthony (2012) suggest that under-nutrition is responsible for at least one third of all deaths among children under the age of five.

¹¹ Such as the multidimensional and dynamic nature of health, the multiplicity of types of work, the impact that the household setting of an individual may have on choices related to health and labour.

¹² These include establishing which measures best reflect past and current nutritional intake, accounting for the distinction between quantity and quality of calorie intake, and the difficulty in dealing with measurement error of health and productivity generally.

¹³ This is the ratio of an individual's weight to the square of her height. Other proxies for nutrition and health in general include weight-for-age, weight-for-height or height-for-age.



to adults (Banerjee and Duflo, 2011: 38). It is at the early-life stage where this mechanism is most influential. The literature relating nutrition to productivity and incomes has met with some scepticism. Banerjee and Duflo (2011: 39-40) suggest that there is insufficient evidence for the existence of a nutrition-based poverty trap among adults but do emphasise that nutritional adequacy among pregnant mothers and young children is crucial for adult welfare outcomes. Strauss (1993), summarising the experimental and non-experimental literature that aims to establish a causal connection between nutrition and labour productivity, highlights several methodological challenges that complicate the interpretation of the findings from this work but concludes that there is, by his reading, some reliable evidence that increasing nutrition intake of the poor raises their capability to work.

Early-life health deficiencies have a lasting impact on the productivity of individuals. Whether such deficiencies are caused by disease or malnutrition, improving children's health is one area where policy intervention can dramatically increase the chances of the poor to improve their circumstances. Banerjee and Duflo (2011: 41) thus posit health to be an area of "low hanging fruit" for pro-poor policy where clearly identifiable interventions – such as the use of bed nets in malaria plagued regions (Sachs et al., 2004: 134); or simply supplementing incomes where a nutrition-based poverty trap has been identified (Horrell, Humphries and Voth, 2001) – can have a beneficial impact on the welfare of the poor and promote social mobility as well as economic development more broadly (UNICEF, 2013). In making the case for improving children's health, it is now accepted that health outcomes are influenced by the environment in utero (Harper, Marcus and Moore, 2003). The 'discovery' of the salience of prenatal development for postnatal outcomes further highlights the fact that mothers' behaviour and choices bear influence from inception (Almond and Currie, 2011; Almond and Currie, 2010).

1.2.2 Education

The study of education has formed an integral part of the discourse around poverty-traps and social mobility. Many researchers have argued that education is one of the principal mechanisms for promoting social mobility (OECD, 2010), as well as dismantling poverty traps (Perry, Arias, Lopez, Maloney and Serven, 2006; Knight, Shi and Quheng, 2010; Van der Berg, Burger, Burger, de Vos, du Rand, Gustafsson, Moses, Shepherd, Spaull, Taylor, von Broekhuizen and von Fintel 2011). Lewin (2007: 3) further explains that these links are especially important in developing countries: "Modernising societies use educational access and attainment as a primary mechanism to sort and select subsequent generations into different social and economic roles. Who goes to school, and increasingly in many developing countries who goes to secondary school, is a major determinant of future life chances and mobility out of poverty." The links between education and both hereditary poverty and inter-generational mobility are fairly intuitive. Poverty can perpetuate itself via low educational attainment (Ceroni, 2001) and low-quality education (Santos, 2009), both resulting in dire labour market prospects and creating a vicious cycle that impedes social mobility.

Various economic models have been built to study the role of education in generating or escaping poverty traps. For instance, Galor and Zeira (1993) model the poverty trap as driven by credit market imperfections. Given initial high inequality, liquidity constraints and set-up costs, they theorise that poor households choose not to invest in education, thereby trapping their descendants in perpetual poverty. Barham et al.(1995) model the effect of education in the poverty trap by allowing variation in households' ability to accumulate human capital. Their model accounts for the fact that households face different rates of return on their investment in education and have different capacities in funding educational expenditures. They conclude that liquidity constraints lock households in

a poverty trap. Ceroni (2001) models the poverty trap with education being privately financed by parents, investing their disposable income in educating their children. They show that persistent income inequality can result from the poor requiring relatively higher returns to increased education in order to ensure that a smaller share of their income is devoted to education. Persistent income inequality can therefore occur if the poor do not attain relatively higher rates of return to education than the rich.

Following the publication of the Coleman Report in 1966, there has continued to be widespread agreement that home background is one of the most important factors influencing students' outcomes (Coleman et al., 1966). Children with better educated parents and more educational resources in the home are more likely to succeed at school and consequently later on in life. The educational expectations of family members and the broader community may, furthermore, influence child expectations and behaviour towards educational attainment. Knight, Shi and Quheng (2009: 315), for example, discuss a "culture of poverty" where a "low level of education in the community – whether among adults or among children – can set a social norm for education and deter individual investment beyond the social norm" (see also Duncan, 1994 and Curley, 2005).

Unequal educational attainment also stems from differential predispositions to learning. These predispositions are, however, not entirely predetermined (through, for instance, genetic transfer), but can be augmented by the environment. In the field of sociology, for instance, there is a considerable body of research which shows that children from higher social classes are primed to succeed at school as a result of their parental interactions (Bernstein, 1973-75). As Iannelli (2013: 908) explains: "At the time of entering school, children from higher social classes are already familiar with the world of knowledge to which school is related. They have already acquired the code by which to decipher meaning of cultural goods in the families. They have a 'readiness' for school that children from lower classes do not possess because the latter are less exposed to the dominant culture taught in school."

Preschool education and early childhood development are therefore of fundamental importance to life outcomes for children (Gertsch, 2009; Heckman, 2011). Inequalities that are already present from birth persist and grow as children get older. Vandell et al., (2010) find that the effects of early child care (birth to 4.5 years) on cognitive achievement were evident in mid-adolescence, more than 10 years later, in America. In South Africa less than 30% of children in the poorest 75% of schools have attended two years of preschool or more, in comparison to 60% of children from the wealthiest 25% of schools (Spaull, 2013). These early inequalities precede, and arguably cause to some degree, the large inequalities that are evident later on in children's schooling careers (see also Shonkoff and Phillips, 2000; Heckman, 2006).

These early inequalities between children of differing social strata usually continue when they enter the formal schooling system. In almost all countries, the resources available to children at school are vastly different depending on the socioeconomic background of those who attend the school (UNESCO, 2005). Thus, whether or not children have access to a variety of enabling school resources (infrastructure, textbooks, high quality teachers, etc.) largely depends on the type of school they attend. For example, families who are able to pay school fees in South Africa are able to send their children to well-resourced schools that offer a far higher quality of education than their no-fee-school counterparts (Yamauchi, 2011; Spaull, 2013). A deficiency of necessary educational resources in schools hampers learning and differing levels of schooling inputs naturally yield differing learning outcomes.



International research has shown that through residential choice, parents can ensure that their children are placed in quality schools (Hanushek, Kain and Rivkin, 1998: 32). Given the strong correlations between neighbourhood wealth, property prices and school quality, wealthier parents can ensure their children fall into the correct catchment zones – something poor parents are unable to do. This is especially true in South Africa where the spatial segregation policies of apartheid have had lasting impacts on the inequality of access to quality education (Yamauchi, 2011). Black students usually live far from good schools (situated in expensive neighbourhoods), which make such schools geographically inaccessible, and those same schools usually charge higher school fees, which makes them financially inaccessible.

Poor households are also marked by a lower vocabulary attainment than is the case for non-poor households, which reflects differences in exposure to language that are carried into schools. Hart and Risley (1995) show that there is substantial variation in the acquired vocabularies of children from different family backgrounds. In their study they observed that by the age of three, children from professional families in America had a cumulative vocabulary of 1100 words whereas for children from welfare-recipient families it was just 525 words (also see Huttenlocher et al., 1991). In South Africa this problem is further exacerbated by the fact that the vast majority of students come from households where the language of instruction is not the language spoken at home (Taylor, Muller and Vinjevd, 2003; Howie, 2002).

Curricular content and subject choice have also been shown to have a strong influence on social mobility, or the lack thereof. Iannelli (2013) finds that children from higher social classes in Britain have a higher propensity to choose subjects valued by the labour-market (languages, English, Mathematics and Science) and that this subject choice accounted for most of the advantage of attending selective schools.

The evidence base from the education, economics and sociology literatures highlights the fact that the schooling system can either propagate or mitigate social inequalities. It can be a pathway out of poverty or simply the holding ground for youth as they become further embedded in the underclass into which they were born.

1.2.3 Social and family influences

The household that a child is born into dramatically affects the development and thus life outcomes of that individual. Moreover, the general environment a child faces during the early-life years (up to age 8) are particularly important for developing skills and capabilities (UNICEF, 2012) and is shaped by other members of the household (principally, the parents) as well as the broader community. This environment can be either an enabling or disabling foundation for their development potential.

An enabling environment is characterized by, among other factors, the presence of both parents in the household; adequacy in quantity and quality of nutritional intake; the ability and willingness of parents to undertake time and material investment in their children; non-exposure to violence and other aberrant behaviour which may bear deleterious long-term psychological effects; safety from harm (both physical and emotional); opportunities for learning; the application of non-violent discipline; and stimulating social interactions within the household as well as the broader social sphere. A disabling environment, in contrast, lacks at least some of these features and is more likely to inhibit children from developing their full potential

Poor households often present their children with a more disabling environment. It is therefore more likely that children born into poor households will not adequately develop the necessary socio-emotional and cognitive skills for success in later life. Both the theory on skills and capabilities formation, as well as empirical evidence on the life and earnings outcomes of poor children supports the notion that poverty serves as a significant risk factor for inhibiting early development (Grantham-McGregor et al., 2007). Parents influence their children both through genetic transfers as well as via active investment in their postnatal development (Musick and Mare, 2006). An important theme from the literature is the fact that postnatal investments are important in developing characteristics such as cognitive capabilities, previously thought to be potentially immutable. Moreover, it is not simply cognitive and physical capabilities that are important markers for a child's future socio-economic outcomes, but also non-cognitive skills such as motivation, self-control and self-confidence (Heckman, 2007: 13250). These non-cognitive abilities and traits are largely influenced by the quality of parenting and household structure and research suggests that deficiencies in these 'soft skills' are correlated with other measures of cognitive ability (such as lower IQ test scores) as well as lower wage earnings (Cunha et al., 2005).

Evidence in support of these claims is presented by Cunha et al. (2005), who report on the findings of three independent child welfare programmes undertaken in the United States. The Perry experiment randomly assigned a group of low IQ children aged four years and from a disadvantaged community to receive free daily 'classroom sessions' as well as one weekly visit to the child's home – so as to get the mother involved in the child's education. Each child stayed in the programme up to age six, whereafter they entered a traditional public school. The Abecedarian project was more involved in that it assigned some children aged four months to a 'preschool intervention' and a similar group of children were assigned as the control group¹⁴. The intervention lasted up to age eight and involved initially full-day care with a teacher during the preschool years followed by regular home visits by teachers during the primary school years. The Chicago Child-Parent Centre Programme provided a group of children aged three with half-day care that included health and various educational and enrichment services. Participants benefited from the programme for up to six years. The outcomes of all three programmes reflect the same patterns. Children in the treatment groups exhibited significant positive later-life outcomes when compared to the control group, including improved behavioural outcomes such as lower rates of crime, a higher probability of being employed and higher income earnings (Cunha et al., 2005: 49). A noteworthy pattern is that better outcomes were observed for children who received intervention at an earlier age. Also worth highlighting is the finding that family behaviour underwent changes as a result of the interventions. The authors are cautious to point out that the evidence is not yet conclusive and that further analysis is required to draw strong interpretations from the data (Cunha et al., 2005: 53).

While the findings are inconclusive, these experiments do still reveal the importance of family environment for early-life development. Parent's education levels as well as whether households are headed by a single parent or not – controlling for other factors – appear particularly important as determinants for the development of skills (Heckman and Masterov, 2007)¹⁵. UNICEF (2012) presents some data from the Multiple Indicator Cluster Survey which supports these suggestions. Across all countries surveyed by UNICEF, it is found that children in poor households were less likely to be engaged by 'an adult household member' in learning activity; were more likely to be left alone or without adequate care; and were less likely to attend early preschool education programmes (UNICEF, 2012: 11).

¹⁴ Also, the criteria for selection into the Abecedarian programme differed from the Perry experiment in that family circumstances were used as determinants. For instance, the majority of children came from single parent homes and the average age of mothers was under twenty years. In all the programmes parent education was lower than high school level.

¹⁵ Naturally, the more adverse circumstances of orphanhood, or being born to parents afflicted by mental illness, is found to negatively influence the behaviour and economic outcomes for individuals (Almond and Currie, 2010)



In addition to family environments, connectedness with the broader society has a bearing on individuals' life outcomes. A strong social network fosters greater opportunities for labour market access, the sharing of certain duties such as the provision of childcare, information diffusion and assimilation, and protection against shocks to resources through lending and borrowing. Various social networks develop through the interaction of individuals and groups, allowing individuals to leverage distributed but shared information and knowledge. When there is segregation between social networks within a society, such separation may serve as a mediator for perpetuating poverty and inequality among particular groups (Bowles, Loury and Sethi, 2009). Literature that relates social interactions to poverty (going under the rubric 'social exclusion') purports marginalisation from society itself to be a form of poverty – in addition to its role as a facilitator for other types of deprivation (Sen, 2000). Experiencing a sense of social connectedness and a feeling of 'belonging' is important for children as dissociation in early childhood may spawn behaviour that is debilitating for healthy socio-emotional development.

The term 'social exclusion' has been ascribed various meanings¹⁶. Burchardt, Le Grand and Piachaud (2002: 30) offer the following definition: "an individual is socially excluded if he or she does not participate in key activities of the society in which he or she lives". This definition is sufficiently broad to include as mediators of social exclusion aspects relating to formal (state provision of goods and services) or informal institutions and societal norms (like racial, ethnic or other forms of discrimination), as well as mechanisms relating to constraints and influences on individual choice¹⁷. It is also open about what 'key activities' comprise though these would usually include access to material amenities like housing and basic goods, non-material factors like relationships, self-respect, recognition and psychological wellbeing, civic participation and political voice, as well as economic participation – crucially, labour market participation. Social exclusion should also be recognized as a dynamic process (Silver, 2007). The range of activities and institutions an individual may be excluded from can change over the life cycle. Moreover, a given individual may, at a given time, find themselves excluded from some activities and not others. An exclusion trap emerges when exclusion from some set of activities in a given period results in exclusion from a greater set in subsequent periods – it is thus a cumulative process that disadvantages poor groups over the life-course.

Social exclusion means feeling disconnected from broader society and manifests as non-participation in the various activities which children from wealthier homes are able to partake in, including particular types of consumption, recreational and leisure activities and attending social or cultural events. This form of deprivation also extends to the development of stimulating relations among peers and other members of society who provide part of a child's 'informal education' (Ridge, 2006: 27), and afflicts the particularly vulnerable, such as children from single-parent households (Harper, Marcus and Moore, 2003: 541). Developing social relations requires investments of both time and money. Financially constrained parents are unable to support the activities their children may need to engage in to sustain desired friendships and other relations. Also, single parents who have to perform multiple duties (work and in the home) may be incapable of adequately engaging their children at home, thereby depriving them of an important input into their socio-emotional development which, as discussed above, influences later life outcomes. Social exclusion thus serves as a poverty trap in that it stunts the development of non-cognitive skills and tempers or distorts aspirations. Sparkes and Glennerster (2002: 197) cite evidence indicating that children who experience social exclusion display low aspirations and expectations. Low aspirations are in turn yet another mechanism for perpetuating poverty (Ray, 2003).

Social exclusion may also arise due to fear of, as well as victimization by, personal violence and maltreatment. Children living in poor circumstances are often exposed to community violence, with deleterious consequences for

¹⁶ Hickey and Du Toit (2007) and Burchardt, Le Grand and Piachaud (2002: 1-3) offer discussions.

¹⁷ Hoff and Sen (2005) present a model that shows how certain consumption choices of the poor perpetuate their circumstances, while Hoff and Pandey (2004) present experimental evidence on how entrenched beliefs give rise to sustained inequality.

their long-term development. Fowler et al. (2009: 228) specifies some of these consequences, which include post-traumatic stress disorder (PTSD), 'externalising problems' – which refers to deviant behaviour – and the acceptance of violence as appropriate behaviour. Yehuda, Spertus and Golier (2001) also cite anxiety, depression, dissociation and a greater proclivity for substance abuse in later life as outcomes of childhood trauma. In communities where violence is pervasive a "communal sense of insecurity" may develop and foster a general sense of helplessness (Fowler et al., 2009). Such an environment is antithetical to the enabling conditions required for the realization of children's developmental potential. Indeed, Yehuda, Spertus and Golier (2001) suggest that trauma suffered by children induces psychological problems that are carried into adulthood. It is further found that PTSD is more prevalent among children whose parents suffered childhood trauma, implying an intergenerational transfer of PTSD which negatively impacts the psycho-social development of the child (Yehuda, Spertus and Golier, 2001: 118). This is especially evident in cases of child abuse and neglect. In a study comparing the psychological health outcomes of abused children to a matched¹⁸ sample, it was found that children who suffered maltreatment reflected higher rates of PTSD, and were more likely to come from families with a history of behavioural problems (Yehuda, Spertus and Golier, 2001)¹⁹. The implications for life outcomes from suffering violent or sexual abuse as a child are devastating. Currie and Tekin (2006) find that victims of child maltreatment are significantly more likely to engage in criminal activity than non-victims. Currie and Widom (2010), furthermore, find significant differences in educational attainment and earnings in the labour market between adults who are documented as child abuse victims and other matched individuals. Besides behavioural and psychological effects, victims of abuse demonstrate reduced cognitive capacity that arises indirectly through behavioural patterns unfavourable for cognitive capability development, but also directly through neurochemical pathways which physically impair optimal brain functioning (Yehuda, Spertus, & Golier, 2001, p. 141) Abuse thus lowers the life chances of children, harming their socio-emotional and cognitive development and thereby reduces their earnings prospects in the labour market.

Social exclusion as a poverty trap mechanism: conceptual difficulties and virtues

The simplest model of a poverty trap states that household asset holdings in a given period is some function of past asset holdings, among other factors, and that asset holdings below some threshold in any one period may result in a subsequent long-run convergence of assets below the poverty line. Social exclusion is one approach attempting to understand the role that 'other factors', particularly social relations and institutions, may play in this process. Developing such an understanding is however not straightforward.

The term 'social exclusion' betrays several shortcomings when attempting to put the concept into application. The phenomenon is not directly observable generally. There exists no universal set of activities and societal functions against which to measure whether someone or some group of people are 'excluded'. Moreover, social exclusion is defined in relative terms even within a given society or community. Even if a set of social functions can be identified as relevant for establishing a sense of inclusion, defining a threshold of exclusion below some number of these is necessarily arbitrary, and the normative primacy of any subset of functions is both temporally and contextually fluid (Hickey and du Toit, 2007).

While these details make it essential to define social exclusion in broad terms, limiting its practical utility, the concept does hold insights that are relevant to discussions on persistent poverty, particularly in less developed

¹⁸ Matched here implies that a 'control group' of children were selected so as to bear similar characteristics (such as age, socio-economic background, etc.) to the abused children. The purpose is to try and isolate the effect of abuse victimisation on various outcomes of interest.

¹⁹ It has also been found that poor children are more likely than non-poor children to suffer abuse. See (Joo Lee and Goerge, 1999) and (Pelton, 1978).

economies with weak institutions and populations that are socio-linguistically heterogeneous. Primary among these is its ability to explain observed patterns of poverty – where afflicted households (or individuals or communities) are members of some distinct group. The distinction may be related to socio-economic status, ethnicity, race, nationality, spatial location, political affiliation, religion etc., and form the basis for exclusion from the various activities that may otherwise advance their wellbeing. Social exclusion furthermore explains the entrapment that poverty maintains on some who are born into it. An individual socially excluded finds it difficult to engage in certain activities (labour market access, say) and, in addition, will likely net lower returns from engagement in such activities relative to someone not excluded. In this way ‘exclusion traps’ fundamentally violate the principal of equality of opportunity through practices of marginalisation and discrimination (which may be subtle and/or overt) and holds much in common with what The World Bank labels ‘inequality traps’ (World Bank, 2005).

Another branch of the poverty literature, adverse incorporation, recognises that the excluded are not merely acted upon without agency, but that their frustrated efforts toward welfare improvement result in lower aspirations and that over time they may develop an acceptance of their ‘place’ in society, tacitly perpetuating their own exclusion (Hickey and du Toit, 2007).

Evidence for the existence and implications of social exclusion are largely qualitative due to the inherent difficulties in measuring factors such as the ‘quality’ or ‘strength’ of relationships and social bonds. And in the absence of good measures that neatly separate the ‘excluded’ from the ‘included’, identifying those in an exclusion trap presents a challenge for researchers and policymakers. Scutella, Wilkins and Kostenko (2009) present one data driven attempt at identifying the socially excluded and also the degree of their deprivation. In identifying the socially excluded they include twenty-nine indicator measures categorized into seven distinct domains including material resources, employment, education, health, social participation, and community membership. They estimate that up to 30% of Australians experience some degree of social exclusion while about 6% are ‘deeply excluded’ (Scutella, Wilkins and Kostenko, 2009). The authors do highlight several short-comings with their approach, such as the arbitrary weighting of indicators and the inability to identify what unites the ‘deeply excluded’ and separates them from the ‘marginally excluded’. A more suitable operational measure for the socially excluded will require better identification and a description of the circumstances that are most severe. This may require a mixed-methods approach.

1.2.4 Geographical dimension

Despite a rapidly growing middle class and decreases in poverty since the end of apartheid, there are still regions in South Africa which seem untouched by the growth in South Africa’s more affluent regions. In this respect South Africa is not unique. Most developing countries have spatial concentrations of deprivation, often located in rural interiors.

Over the past fifty years, two schools of thought have come to dominate discussions on research into the process, consequences and changes in poverty over time and space. The one view, as it relates to child poverty, reasons that poverty is attributable to individual characteristics or family structure. This view is generally substantiated empirically by the observation that children living in households headed by females or unmarried parents are more

likely to be poor than those children living in households where the head is male or the parents are married. This line of reasoning is rooted in the notion that the breakdown of familial norms and high levels of fertility amongst certain groups of individuals may foster and reinforce a culture of poverty which is difficult to escape (Voss et al., 2006: 371). The second view focuses on structural or environmental factors beyond the individual's control as determinants of poverty. These factors are spatially defined such as weak local economies, high unemployment rates and poor access to government services (Wilson, 1996; Pebley and Sastry, 2003).

However, there are a number of researchers who do not view the 'people-poverty' and 'place-poverty' perspectives as mutually exclusive explanations for the existence of poverty. Relatively recent papers such as Lichter and Johnson's (2007) spatial analysis of poverty in the United States blend the two approaches in an attempt to explain how geography and individual characteristics are complementary in explaining rural child poverty.

Jensen, McLaughlin and Slack (2003: 130) contend that the "poor in poor communities are doubly disadvantaged". In addition to having low incomes, they are often excluded from many of the government services or service quality provided in more affluent communities such as education, adequate transportation, medical care and other basic services such as clean water and adequate sanitation facilities. Although access to basic services for South Africans has improved dramatically due to improvement in rural services and migration to urban areas, access to and quality of services still vary considerably along spatial dimensions.

The former 'homeland' regions, which experienced gross underinvestment in the past, maintain their status as the most deprived areas in the country as the historical disadvantages have not been greatly remediated. Given that geographic location is highly correlated with race in South Africa, this implies that the most deprived people are black and live in rural regions of the former homelands.

These characteristics are reflected in the migration patterns observed within the country. Regional migration is another factor that may exacerbate regional geographic poverty traps. People in poorer areas may be inclined to seek opportunities in urban or more prosperous areas. If the group of people motivated to migrate are also the more productive members of that community, then their departure serves as a loss to the future prospects for their place of origin. Rural-urban migration is a global phenomenon, and a process that is unlikely to revert. Policies aimed at addressing poverty traps resulting from migration should thus, while focusing on those left behind, also try to facilitate the migration process and reduce the barriers to doing so. Migration has implications on child development given that migrant workers typically originate from poverty stricken rural areas. Children left behind must thus contend with their adverse environment in the absence of a parent.

Although the rural setting is a dominant point of discussion in poverty literature, spatial patterns of poverty also manifest in urban areas and neighbourhoods, particularly slums and informal settlements (Marx, Stoker and Suri, 2013). Inner city slums and other urban areas that are underendowed with public and private resources reduce the returns to investment by individuals living in them and may sustain a poverty trap. That poverty traps may be sustained in urban areas with favourable proximity to economic opportunities (relative to rural areas where access to economic opportunities are severely limited) reflects the multidimensional nature of the phenomenon. The neighbourhood effect encompasses various interactions of some of the other poverty trap mechanisms discussed above. The quality of education and health services, the opportunity for social integration, access to transport, the



degree of protection from adverse social conditions, and the level of wealth and assets all may differ from one neighbourhood to another. The relevance of neighbourhood effects for poverty traps lies not only in underinvestment as a mediator but, crucially, how neighbourhoods influence the behavioural choices of individuals which then feed back into an emergent property of the neighbourhood. Durlauf (2003) cites the documented disparities by district (in the US) in education spending as an example of a geographic neighbourhood effect perpetuating poverty. Children living in areas where education spending per pupil is low are more likely to receive lower quality education which in turn influences their capabilities and has knock-on effects in the labour market. Neighbourhoods are also pertinent in shaping the aspirations and behaviour of children, through what Durlauf (2003) calls the 'role model effect'. That is, children model their behaviour on how other older members of their local community behave. Thus, for children growing up in neighbourhoods where long-term unemployment is pervasive, where a majority of people fail to complete high school, and where negative behaviour such as crime or excessive drinking are seen, inclines these children to imitate the behaviour they observe. This increases the likelihood of them falling into a self-reinforcing pattern of behaviour that can harm their economic prospects in adulthood and generate a poverty trap.

1.2.5 Wealth and assets

The discussion above develops the conception that deprivation in intangible assets (health, education, social capital) may serve as poverty trap mechanisms. Perpetually low asset levels are however, the clearest manifestation of being stuck in a poverty trap. Household asset levels are a useful measure of relative wealth or welfare, and have often been used as an alternative to income or consumption in empirical poverty studies (Naschold, 2013). The asset levels owned by a household generally reflect their means for consumption and, as Naschold (2013:938) argues, their accumulation is what ultimately determines a household's ability to escape poverty. The poor face great difficulty in the accumulation of assets due to being 'liquidity constrained' as well as 'credit constrained'. When liquidity constrained, an individual or household's income is too low to enable the accumulation of savings. Credit constraints imply that poor households, having no collateral, are unable to borrow. Households who are liquidity and credit constrained are unable to undertake any kind of investment (in education, or some income generating activity or asset) that may shift them out of poverty. These constraints are compounded by other factors such as scarce and insecure employment as well as low land ownership among the poor, both factors that are germane to the South African context²⁰.

Barrett and Carter (2013) present a model that, in encapsulating much of the antecedent poverty trap literature, aims to describe the process and implications of an asset-based poverty trap for an individual. Summarising, the model assumes an individual with some degree of inherent skill or ability as well as some initial level of assets. The individual combines these to generate income and, over time, accumulates wealth. The individual also employs some technology in the production process and this technology is further subdivided into high-productivity and low-productivity technology. The model further assumes that credit constraints apply and that there is no access to insurance against shocks to asset holdings. The individual can in any given period consume her current income and her stock of accumulated assets. Model simulations show that individuals can, in the long-run, end up in either a poor or non-poor state, depending on various parameter values. Implications that follow from this stylized setup are in line with the theory and include the following: initial asset endowments determine the long-run outcome of asset holdings; the absence of insurance or credit market access implies that non-poor individuals who suffer a shock to their asset holdings may be pushed into a poverty trap; whether an individual ends up in the poor or non-poor state

²⁰ Unemployment in South Africa has increased since 1994 and currently is estimated to be around 25% (defined narrowly). Furthermore, it is estimated that a third of the population practice communal land tenure which is lacking in security of land tenure, and often characterised by low productivity land usage and overpopulation (Moagi, 2008).

in the long-run depends both on their inherent ability (which is here assumed to remain constant) as well as the given technology that is available for use in production (Barret and Carter, 2013: 980-981).

Something that the model was not constructed to illustrate, but does not necessarily preclude, is the impact of low asset holding on children. It has been argued above that early childhood development is crucial for later life outcomes and that these developments require investments. Households in which asset holdings are low cannot undertake investments in quality childcare, education, or other developmental activities for their children.

Several researchers have attempted to estimate the existence of asset based poverty traps. These studies undertake to determine, using survey data, whether households in a particular area or country may reflect divergent long-run asset accumulation paths. That is, they attempt to answer the questions: for any two given households, is it the case that (in perpetuity) one may find itself above the poverty line while the other does not?; is there some asset level threshold that separates these two households?; what is that threshold?; what are the characteristics of the households who fail to surpass that threshold?; how important a factor was the initial level of assets in determining on which side of the poverty line households end up on? Some of these studies find evidence for poverty traps while others do not.

Barrett et al. (2006) argue that certain poor households in rural Kenya and Madagascar may be in a poverty trap. Using panel data for various regions in these countries they find that welfare dynamics are such that, in concert with the model described above, households converge to poor or non-poor states dependent on their initial asset levels. They also conclude that liquidity constraints and social exclusion appear to be instrumental in sustaining the poverty trap. Adato, Carter and May (2006) analyse household data from one province (KwaZulu-Natal) in South Africa and find evidence for the existence of a poverty trap. Specifically, they estimate that “households that begin with an asset base expected to yield a livelihood less than two-times the poverty line are predicted to collapse toward a low-level poverty trap with an expected standard of living equal to 90% of the South African poverty line”. They also present qualitative data that describes some of the factors associated with households stuck in a low-income trap. Unemployment among households was pervasive and employment often of an informal or temporary nature. Various shocks were encountered by poor households including fires, illness or death of an income earner. Moreover, when a member of a households who is formally employed leaves or dies, this presents a loss of income as well as a loss of social capital in that a link to a formal network is broken (Adato, Carter and May, 2006: 239). The authors argue, based on the qualitative evidence, that social networks, by themselves, are too weak to serve as a gateway out of poverty given the legacy of social exclusion in South Africa (Adato, Carter and May, 2006: 244).

Naschold (2013), using data for rural communities in Pakistan and Ethiopia, was unable to determine that a poverty trap mechanism was inhibiting higher welfare levels. The expected long-run level of asset accumulation was found to be below the poverty line for all households in their sample. Because of this, there was no apparent evidence of an asset threshold beyond which household welfare converges to a non-poor state. The author was unable to identify particular poverty trap mechanisms of the sort discussed above, implying that all households were subject to a long-term single equilibrium low-level standard of living. In other words, they are caught in a structural poverty trap²¹ Naschold (2012) undertook a similar study using data from rural parts of India and obtained a similar result there.

These divergent results point to different underlying mechanisms. The two former studies reflect a pattern of welfare dynamics that diverges for people in the same area. Certain households are manifestly better off than others yet they

²¹ See section 1.1 ‘Defining poverty traps’ above for the difference between single equilibrium (structural) and multiple equilibrium poverty traps.



exhibit characteristics that are otherwise similar, and in all cases liquidity constraints and social networks appeared to have some importance. In the latter cases poverty is omnipresent and likely the outcome of some broader structural issues relating to macroeconomic conditions, geographic characteristics, or inadequate technological and institutional means necessary for delivering higher living standards. Therefore, different policy responses will likely be applied to these two different cases. The latter case presents a greater challenge as it would require more complex countervailing policies. The early development literature argued that countries displaying structural stagnation will eventually grow as capital seeks its highest return and finds its way to regions where labour is underutilised and thus cheap.

1.3 CONCLUSION: POVERTY TRAP AS A CONFLUENCE OF MALADIES

The Chronic Poverty Research Centre (2009) estimates that somewhere between 320 and 443 million people globally are stuck in chronic poverty, many of them mired by the mechanisms discussed above. These are people who will likely never know what it means to be not poor. They will almost certainly transfer the burden of perpetual deprivation onto their children. The lives of children counted among these many millions will be characterized – relative to their wealthier peers – by poorer health status, low and inferior educational attainment, social exclusion, and community environments that harm childhood development. They will also be remote from economic opportunities and enriching social engagement, and, in adulthood, their lives will be characterized by unemployment or low wages in tenuous jobs with little opportunity for improved labour market prospects (Chronic Poverty Research Centre, 2009). Policymakers and scholars recognize that it is not enough to describe the environment that the chronically poor will inhabit over their life course, but rather, that an attempt should be made to identify the propagating mechanisms of these circumstances and develop appropriate interventions that could change their course.

This chapter highlights several such mechanisms found in the international literature and, although these are discussed in isolation, they need not function as such. It is indeed the interplay of these mechanisms, constituting a confluence of maladies, which tightens the grip that poverty holds over the disadvantaged. The poor are, by definition, deprived of assets. Their low incomes and lack of collateral constrain their ability to save or borrow. Spending on education and health suffer as a result of these constraints, reducing human capital development. Publicly provided services in areas where the poor live are inadequate to bridge early human capital deficits. Schools deliver education of inferior quality, clinics and hospitals suffer from underinvestment and provide a poor level of service. The broader community does not create for poor children an enabling environment that sees them flourish. Instead, their aspirations are soon tempered, and the cycle of poverty perpetuates.

The complex nature of interacting mechanisms is recognized by development practitioners, as is the precept that interventions aiming to release people from poverty traps will similarly require a multifaceted intervention that simultaneously targets several mechanisms to increase its chances of success. Sachs (2005: 208), invoking this approach as appropriate for poor Sub-Saharan African economies, argues; “a combination of investments well attuned to local needs and conditions can enable African economies to break out of the poverty trap. These interventions need to be applied systematically, diligently, and jointly since they strongly reinforce one another.” Chapter 4 discusses several programmes targeting multiple mechanisms that affect welfare at the individual and household level. These may guide future possible interventions in South Africa, but before potential lessons from them can be learnt, it is first necessary to understand the nature and extent of entrenched poverty and social exclusion in this country.

DESCRIBING LIFE CHANCES AND SOCIAL EXCLUSION AMONGST CHILDREN IN SOUTH AFRICA

To lead flourishing lives, children require an environment that offers opportunities for fulfilling their developmental potential. Policies instituted under apartheid, however, meant that these opportunities were systematically denied to the majority of South Africa's citizens, and left them with little chance of escaping poverty. With the dismantling of apartheid in 1994, and with it the barriers to pursuing economic livelihood, an important question is to what extent the removal of welfare inhibiting laws and institutions would loosen the grip of poverty on South Africa's current and future generations of children.

After a brief summary of the existing research relating to poverty traps in South Africa, the sections that follow bring children into focus by reviewing the literature relating to child poverty in South Africa. The first section presents estimates of child poverty using the most recent Income and Expenditure Survey (IES) data. The money-metric measures are complemented with a multidimensional poverty index that presents a broader measure of wellbeing and deprivation by capturing aspects other than material welfare as part of the index. The final four sections place emphasis on the various ways in which the developmental environment is distorted through the mechanisms of poor health outcomes, poor quality education and incapacitating home and community environments, spatial disadvantage and inadequate assets.

2.1 POVERTY AND POVERTY TRAPS IN SOUTH AFRICA

With the advent of democracy came an urgent need for South African officials to understand the scale and depth of the country's poverty levels. The increased availability of nationally representative surveys from 1993 onwards enabled researchers to undertake studies that could provide an account of the nature and severity of poverty in South Africa. While there is some disagreement about the magnitude of changes in the poverty headcount²² (Meth, 2006), the conclusion that poverty levels have been declining, particularly after the turn of the century, is empirically unassailable. This finding holds, moreover, for various poverty measures including money-metric measures (such as income or expenditure) as well as non-money-metric welfare indicators (which account for the fact that wellbeing requires the satisfaction of both material and non-material needs and desires)²³. A coarse interpretation of the documented decline in poverty is that antipoverty measures have been successful and that policy should now simply stay the course. A majority of the empirical studies make use of various cross-sectional survey data, and are therefore silent on the extent of chronic and structural poverty²⁴. Because past policies restricted the economic opportunities of non-whites, an important question is whether the extension of equal rights to all since 1994 has ended these low-income traps. Are the poor able to overcome their initial low-income? Fully answering this question requires the analysis of panel data which tracks various aspects of the same sample of households, thus allowing researchers to study poverty dynamics and social mobility more carefully.

In 1998 a survey was undertaken of a subset of the households surveyed for the 1993 PSLSD, thereby creating the first post-apartheid South African longitudinal data set (known as the KwaZulu-Natal Income Dynamics Survey (KIDS), as this second wave was limited to black and Indian households in KwaZulu-Natal province). The two-wave panel allows researchers to study the dynamic characteristics of poverty and to distinguish between households that are transitorily poor and those caught in a poverty trap. Roberts (2001) made use of the KIDS data to determine the extent of, and

²² The poverty headcount refers to that proportion of the overall population that can be classified as poor.

²³ Papers documenting changes in money-metric poverty measures include Van der Berg, Louw and Yu (2008) and Leibbrandt et al. (2010). Research into South African multidimensional welfare shifts can be found in Bhorat, Van der Westhuizen and Goga (2007) and Finn, Leibbrandt and Woolard (2013).

²⁴ Although Carter and May (2001) identified certain households as structurally poor by using only the PSLSD data. Their research finds that structural poverty among rural blacks arises due to low returns to endowments, financial constraints that limit the effective use of available assets, and poor infrastructure that places an undue time burden on households' undertaking basic livelihood activities (such as fetching water).

characteristics associated with, chronic poverty. He set a poverty line at R237 of expenditure per month (in constant 1993 rand) and employed a poverty transition matrix which, in this case, reports on the flow of households into and out of poverty between 1993 and 1998. Households which indicated that their expenditure fell below the poverty line in both years were deemed chronically poor. Roberts (2001) found that 23% of households surveyed were chronically poor. An analysis of the characteristics associated with the two poverty types revealed that chronically poor households were more likely to reside in rural areas, have lower educational attainment, be female headed and contain more children than households which were transitorily poor over the period (Roberts, 2001: 12-15). These children are thus particularly vulnerable to simply remaining in poverty and ultimately transferring this status also to their own children.

Carter and May (2001) attempted to go beyond the analyses of Roberts (2001) and identified the existence of poverty traps²⁵. Using KIDS, and applying the same poverty line as Roberts (2001), they too derived a poverty transition matrix and estimated that 18% of the surveyed households could be classed as chronically poor. Carter and May (2001) then further decomposed these chronically poor households into structurally poor and stochastically poor households. They found that up to 92% of the chronically poor households were potentially stuck in a poverty trap and, moreover, that of all households in the survey, 38% were potentially structurally trapped in poverty. In a later study, Adato, Carter and May (2006) again exploited the KIDS data to analyse the rate of structural and other types of poverty. They supplemented the quantitative analysis with qualitative data from extensive interviews with 50 of the households (taken in 2001) that were all surveyed in 1993 and 1998. The quantitative analysis yielded similar results to that of the Carter and May (2001) study in that they found evidence for the existence of a poverty trap at a threshold below the poverty line. The qualitative evidence confirmed the finding of a poverty trap by demonstrating that those households identified quantitatively as potentially stuck in poverty, also expressed little qualitative changes in their circumstances (Adato, Carter and May, 2006: 241). They also reported on the relative unimportance of social networks as a mechanism for escaping poverty, stating that “social capital becomes more narrowly constructed and increasingly ineffective as a mechanism of capital access for poor people in a country facing a legacy of horizontal inequality and social exclusion” (Adato, Carter and May, 2006: 244).

Aliber (2003), using various data sources, estimated chronic poverty in 2003 to be between 18% and 24% of the total population (note that this range includes both the estimates derived by Roberts (2001) and Carter and May (2001) respectively). He provided a list of individual and household characteristics that are associated with being chronically poor, including the expected characteristics such as inhabiting a rural dwelling, households being female headed, and being disabled. The potential impact of HIV and AIDS on chronic poverty was also discussed and Aliber (2003) projected that the pandemic could raise chronic poverty levels by 26% - 33% beyond what they would be in the absence of the HIV and AIDS pandemic.

2.2 ESTIMATING CHILD POVERTY IN SOUTH AFRICA

The recognition of children's vulnerability to poor economic and other adverse circumstances, together with their importance to future development, has seen increased efforts to institutionalise and promote child protection

²⁵ See Chapter 1 above for the definitional distinction between chronic poverty and poverty trap.

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and development. At the international level, this is evident in the implementation and widespread ratification of the United Nations Convention on the Rights of the Child. In addition to South Africa's being a signatory to the UN convention, the country has made efforts to promote and support child development as manifested in the Constitution and the Children's Act, both giving prominence to the rights of children (Proudlock and Mahery, 2010). Holding to these provisions requires the continual monitoring of child wellbeing as well as the development and implementation of policies to enhance it.

Figure 2.1 shows that the child poverty rate has tracked the rapid and continued decline in the overall poverty rate between 2000 and 2010. According to these data, taken from three recent IES surveys, the estimated poverty rate of the overall population decreased from 65% in 2000 to just below 40% in 2010, while the child poverty rate dropped from 76% in 2000 to just below 50% in 2010. Over the same period the number of individuals in poverty decreased from 28.4 million to 20.2 million, whereas the number of children in poverty declined from 14.4 million to 10.4 million (children are defined as individuals younger than 18 years; the poverty line used is R575/month). However, these data may represent an inaccurate picture of trends in poverty rates over this period. Researchers agree that the IES 2000 overestimated poverty rates and thus the trend line displayed in Figure 2.1 should be regarded in that context.

Figure 2.1: Trend in child poverty based on IES, 2000 – 2010/11

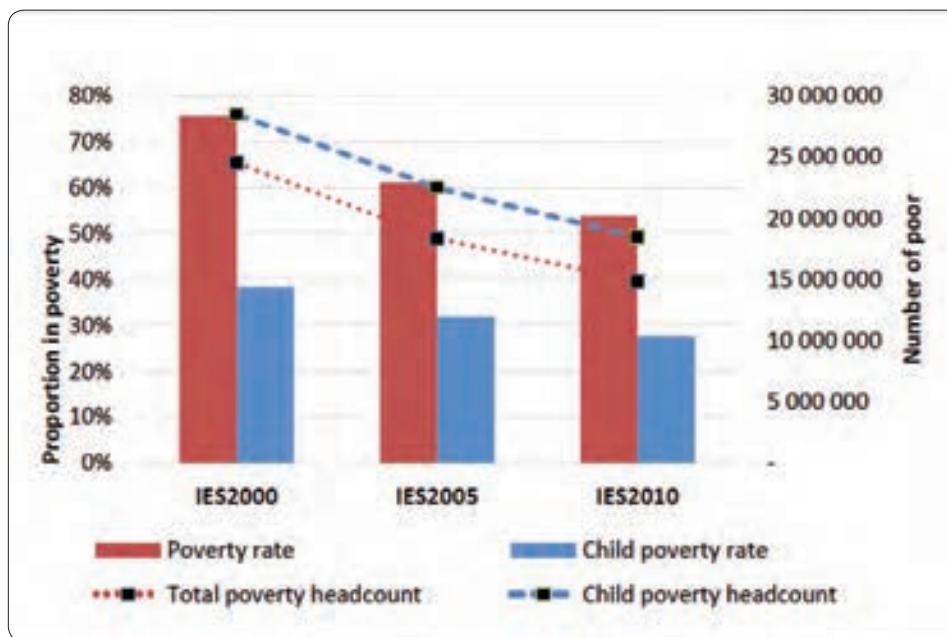
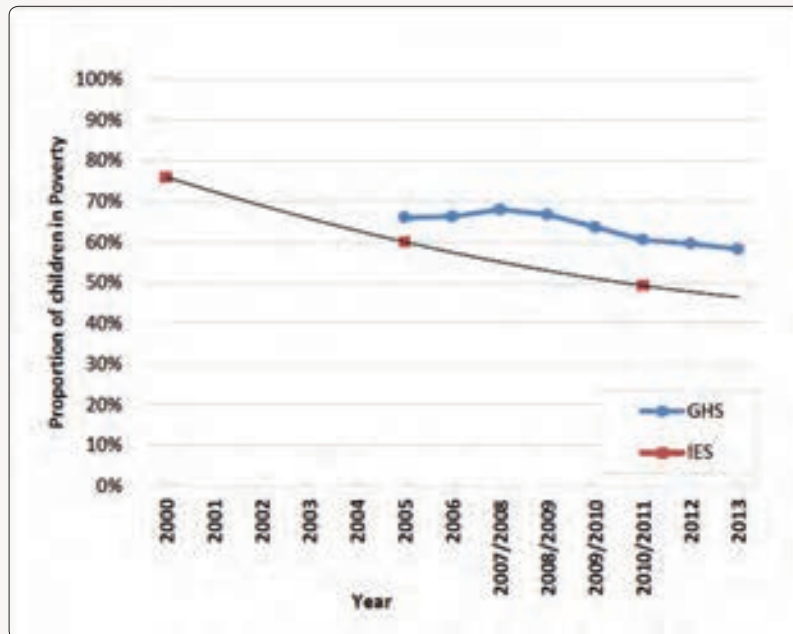
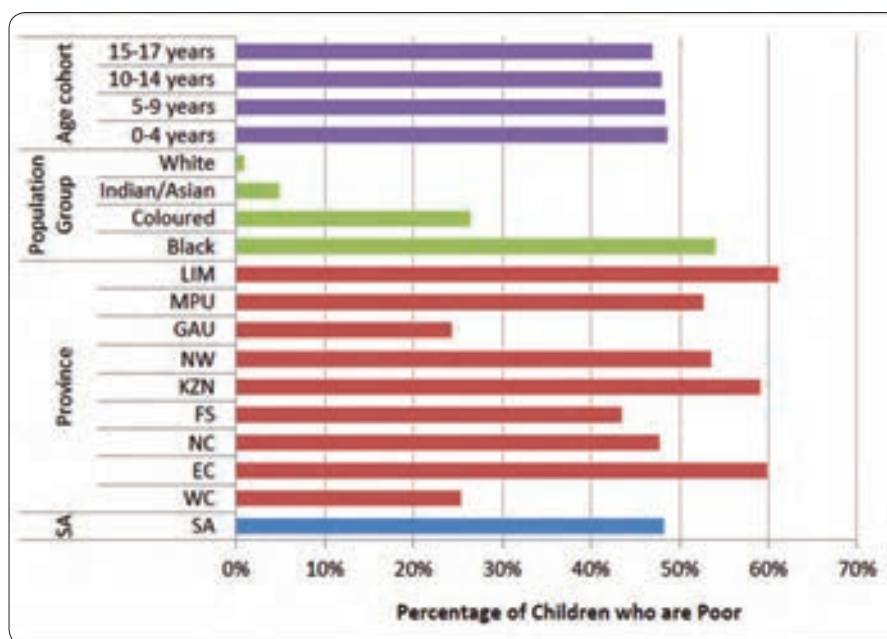


Figure 2.2: Comparing IES estimates with GHS estimates from Child Gauge



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Figure 2.3: Poverty amongst children in South Africa, 2010/11



Notes: Own calculations based on IES 2010 and GHS 2011 surveys.

Figure 2.2 shows a comparison of the IES poverty estimates to headcount ratios derived from the General Household Surveys (GHS) (as cited in the annual Child Gauges²⁶). The GHS, like the IES estimates, shows a decline in the child poverty ratio between 2005 and 2010, although the decrease is considerably smaller: the IES reflects a decrease of 11 percentage points while the GHS indicates that child poverty decreased by 6 percentage points over the period 2005-2010. Using the same definitions of poverty and children, the GHS poverty estimates are also generally higher²⁷. This is in line with expectations since the income and expenditure proxies contained in the GHS are likely to under-estimate household income and expenditure.

The 2012 Child Gauge indicates that 60.5% of all South African children (defined as persons younger than 18 years) resided in poor households (the poverty line used was R575 per person per month²⁸). In absolute terms this translates to just over eleven million children (out of 18.5 million) living in poverty. These numbers reflect a significant improvement over the 2003 figure, which stood at 13.2 million (or 73%). Unsurprisingly, large variations by province and race are evident in the data: two thirds of black children are poor while the figure for whites is 2%; the Western Cape has the lowest proportion of children living in poverty at 31% and Limpopo the highest at 77% (Hall and Lake, 2012: 86).

The child poverty ratios reported in Figure 2.1 and the Child Gauge are all based on an income threshold. Money-metric poverty measures such as these have long been criticised for having a narrow focus which does not capture all the dimensions of a meaningful existence. In response, many researchers seek to determine the extent of deprivation along various other dimensions. Hall and Wright (2010) make use of the National Income Dynamics Survey (NIDS) data to determine the degree of deprivation (along non-income dimensions) among South Africa's children. They find that children are more deprived, relative to adults, of basic services such as access to flush toilets, on site water and electricity (Hall and Lake, 2012: 58). These authors also consider the income based poverty

²⁶ Since 2005 the Children's Institute has been publishing an annual report, 'The Child Gauge', which aims to track legislative and other developments as they relate to children. The publication also reports on 'child-centred' data, compiled from the various national surveys as well as administrative data (Hall and Lake, 2012)

²⁷ It should be noted that the GHS does not contain full income or expenditure data, so that these estimates are, even at the quite high poverty lines drawn, somewhat over-stated. However, it is likely that the change over time referred to below broadly reflects the underlying trend that would have been obtained if more complete data and other poverty lines were used.

²⁸ This is an inflation adjustment of the unofficial but commonly used lower bound poverty line proposed by Ozler (2007). A 'cost of basic needs' approach was used in determining the poverty line (Ozler, 2007: 490). This is the poverty line used throughout the analysis contained in this report.

headcount and determine – using R515 per person per month²⁹ in constant 2008 rand – that 67% of children were living in poverty in 2008.

A study by Streak, Yu and Van der Berg (2009) used the 2005 IES data and found similar poverty headcount ratios among children. The authors demonstrate that applying various scaling strategies when calculating poverty ratios for children does not significantly affect the measured result. They apply a poverty line arrived at by taking the 40th percentile of average household income and find that at this threshold 65.5% of children are poor. They also decompose children into three age cohorts (0-4, 5-14, and 15-17 years) to discern any differences in poverty ratios between younger and older children. This exercise reveals that the youngest cohort experiences the highest poverty headcount ratio (Streak, Yu and Van der Berg, 2009: 196). Leibbrandt et al. (2010: 37) document similar findings. They consider three separate surveys in order to estimate the changes in child poverty spanning the period 1993-2008³⁰ and find child poverty rates to be highest in younger cohorts (with the 0-10 aged cohort having the highest poverty headcount). Figure 2.3 indicates that these patterns remain a feature of child poverty in South Africa.

The distribution of child poverty in South Africa clearly reflects its history of inequities. Figure 2.3 above shows that very few white children were classified as poor (less than 1%), while a substantial share of black children were poor (54%). There are also marked provincial differences in child poverty: in the Western Cape 25.4% of children were poor, while in Kwazulu-Natal, Eastern Cape and Limpopo the share of children classified as poor was much higher (59.1%, 59.9% and 61.1% respectively).

2.3 MEASURING CHILD POVERTY USING A MULTIDIMENSIONAL POVERTY INDEX (MPI)

As a complement to the money-metric poverty measures reported above, this section provides an analysis of more recent trends in child poverty and uses a broader conceptualisation of what it means to be poor. A multidimensional poverty index (MPI), which is comprised of a broader range of wellbeing indicators, is constructed so as to account for child wellbeing using a different measure than the per capita monthly income level of the household. Following Sen's (1999) more comprehensive conception of poverty, it places wellbeing in the space of capabilities (Alkire and Roche, 2011). MPIs have in recent years become increasingly popular amongst development researchers internationally, and have already been applied several times in South Africa³¹. The MPIs presented here differ from these efforts as they are constructed using child centred data and include indicators not explored previously.

Three MPIs are derived. Construction of the 'baseline' MPI (Index I) largely follows the framework used in Finn, Leibbrandt and Woolard (2013). Two further iterations of the MPI, with some adjustments made to the baseline index, were then generated. The adjustments include adding or substituting deprivation dimensions, adjusting the composition of indicators within a given dimension, or changing the weighting of indicators. The estimates are based on the NIDS panel data and to ensure that the estimates are comparable over time, only the sub-population of children who remained in the sample throughout the time period 2008-2012 was included.

Although many of the indicators are measured at the household level, the unit of analysis here is the individual child³². Five dimensions are used, including health, education, living standards, employment and life satisfaction.

²⁹ This is based on the commonly used lower bound poverty line proposed by Ozler (2007). The difference between the 2008 line of R515 and 2010/11 line of R575 is attributable to inflation adjustment.

³⁰ These are the PSLSD of 1993, the IES for 2000 and the NIDS for 2008.

³¹ See Alkire and Santos (2010) and Finn, Leibbrandt and Woolard (2013).

³² As in the rest of the report, children are defined as all individuals who were younger than 18 years in 2012.

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Each of these dimensions, except for 'labour market access' and 'life satisfaction', comprises several indicators. This methodology requires establishing a condition, or cut-off, that signifies deprivation for each indicator, and then allocating weights to each indicator. The three MPIs that are derived each have a different specification (using different indicator cut-offs) and weighting scheme. Table 2.1 shows the various indicators that make up the education dimension as well as its deprivation conditions (this table is incomplete and serves merely to illustrate the methodology – the table containing all dimensions and indicators appears in Appendix 2), while Table 2.2 lists the weighting strategies and dimension/indicator choices for the three different MPI specifications.

Table 2.1: Description of the indicators of the Multidimensional Poverty Indices

Indicator Name	Children are deprived if they live in a household where ...	Dimension
Schooling: 5 years	No household member has at least 5 years of completed education	Education
Schooling: 7 years	No household member has at least 7 years of completed education	
Enrolment	At least one child of school-going age (7-15 years) does not attend school	
School quality	At least one child of school-going age (7-15 years) attends a quintile 1, 2 or 3 school	

The weighting scheme and specification of Index I are identical to that used in Finn, Leibbrandt and Woolard (2013). Index II excludes school enrolment, given the near universal primary school enrolment rates in South Africa which render it a poor indicator of deprivation. The indicator cut-off for educational attainment was also raised from 5 to 7 years as this level signifies the completion of primary school. Index II furthermore adds cell phone ownership as a household asset and also includes a measure of adult malnutrition in measuring whether an adult or a child is underweight for the nutrition indicator, while Index I only considered child malnutrition.³³ The specification for Index III differs from Index II in four ways. A measure of obesity within the household replaces child mortality in the health dimension so as to complement the measure of malnutrition. Secondly, Index III includes school quality as an indicator in the education dimension, to account for the importance of school quality for labour market outcomes in South Africa. Given the strong correlation between the socioeconomic status of the school and the quality of performance of the school, classification as a quintile 1, 2 or 3 school is used as a proxy for low school quality in this analysis. Such an approach is supported by research showing that these schools perform significantly worse than their peers in quintile 4 and 5 schools (Van der Berg et al., 2011). Thirdly, households' access to the labour market is included as a new dimension in the MPI. This is warranted by the fact that unequal access to the labour market has been shown to be the main driver of inequality in South Africa (Leibbrandt, Finn and Woolard, 2011). Households with no employed adults are therefore sure to be more deprived than households with access to the labour market. Finally, 'life satisfaction' is included as another dimension in Index III and aims to capture the lack of emotional wellbeing and hopefulness as features of poverty.

³³ Again, this was done because the 1993 data used by Finn, Leibbrandt and Woolard (2013) did not include anthropometric measures for adults.

Table 2.2: Three Indices

	INDEX I	INDEX II	INDEX III
Indicator	Weight	Weight	Weight
Education			
Schooling 5 years	1/6	0	0
Schooling 7 years	0	1/3	1/10
Enrolment	1/6	0	0
School quality	0	0	1/10
Education sub-total	1/3	1/3	1/5
Health			
Child Mortality	1/6	1/6	0
Nutrition – Malnourishment	1/6	0	0
Nutrition – Underweight	0	1/6	1/10
Nutrition – Obesity	0	0	1/10
Health sub-total	1/3	1/3	1/5
Living Standards			
Cooking Fuel	1/15	1/15	1/25
Sanitation	1/15	1/15	1/25
Water	1/15	1/15	1/25
Electricity	1/15	1/15	1/25
Assets excluding cell phone	1/15	0	0
Assets including cell phone	0	1/15	1/25
Living Standards sub-total	1/3	1/3	1/5
Access to Labour Market			
Employment	0	0	1/5
Access to labour market sub-total	0	0	1/5
Life satisfaction			
Subjective wellbeing	0	0	1/10
Hopefulness	0	0	1/10
Life satisfaction sub-total	0	0	1/5
TOTAL	9 indicators with weight =1	8 indicators with weight=1	12 indicators with weight=1

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Children are regarded as poor if they reside in a household where they are deprived in a third or more of the weighted indicators. This threshold is in line with Alkire and Santos (2010) and Finn, Leibbrandt and Woolard (2013). Those children who are deprived in half or more of the weighted indicators are categorised as living in severely deprived households.

2.3.1 Trends in multidimensional poverty in South Africa between 2008 and 2012

The analysis starts by estimating the poverty incidence (H), poverty intensity (A) and the MPI (H*A) for each of the three Indices in Table 2.3 below. The poverty incidence is simply the number of children, or headcount (H), who are deprived in 1/3 or more of the weighted indicators. The average intensity is the mean deprivation level for children who have been identified as being poor in the headcount calculation. The MPI (H*A) is the product of these two measures.

Table 2.3: Child poverty measured by Multidimensional Poverty Index in 2008, 2010 and 2012

INDEX I			
	Multidimensional Poverty Incidence (H)	Multidimensional Poverty Intensity (A)	MPI (H*A)
2008	0.120	0.4119	0.048
2010	0.119	0.4089	0.049
2012	0.090	0.4089	0.037
INDEX II			
	Multidimensional Poverty Incidence (H)	Multidimensional Poverty Intensity (A)	MPI (H*A)
2008	0.160	0.4708	0.075
2010	0.138	0.4593	0.063
2012	0.105	0.4424	0.046
INDEX III			
	Multidimensional Poverty Incidence (H)	Multidimensional Poverty Intensity (A)	MPI (H*A)
2008	0.483	0.4855	0.23
2010	0.561	0.5051	0.28
2012	0.500	0.4940	0.25

Notes: Own calculations using NIDS Wave 1, 2 and 3. Poverty rates were calculated for the sample of children aged 18 or younger in 2012 and who remained in the sample throughout the three years.

H stands for headcount ratio, i.e. proportion of sample that was deprived in 1/3 or less of the weighted indicators. A stands for intensity, i.e. the average weighted proportion of indicators in which MPI poor children were deprived.

Index I and Index II reflect similar values, with an MPI estimate of around 0.04 for children in 2012. However, including the indicators in Index III increases the MPI to approximately 0.25 in 2012, more in line with money-metric poverty. These estimates are all larger than previous estimates of the MPI for South Africa.

All three indices report decreases in multidimensional poverty over time. However, while Index I and Index II show a decrease from 2008 to 2010 and again from 2010 to 2012, Index III shows an increase in multidimensional poverty from 2008 to 2010 and then a decrease from 2010 to 2012, with overall multidimensional poverty seeming to have slightly increased over the full period from 2008 to 2012. This is explained by the inclusion of the additional dimensions of employment and life satisfaction, both of which were at a low-point in 2010 before slightly recovering in 2012.

Table 2.4 reports the severity of the deprivation of the sample of children over time for the three indices. Children who were deprived in half or more of the weighted indicators have been identified as being “severely deprived” (Finn, Leibbrandt and Woolard, 2013). Estimating Index I and II, the proportion of children identified as being severely deprived is limited to less than 6% in any year. However, when applying Index III, it is found that approximately 23% of the children in the sample were in severely poor households.

Table 2.4: Severity of deprivation among children in the sample for 2008, 2010 and 2012

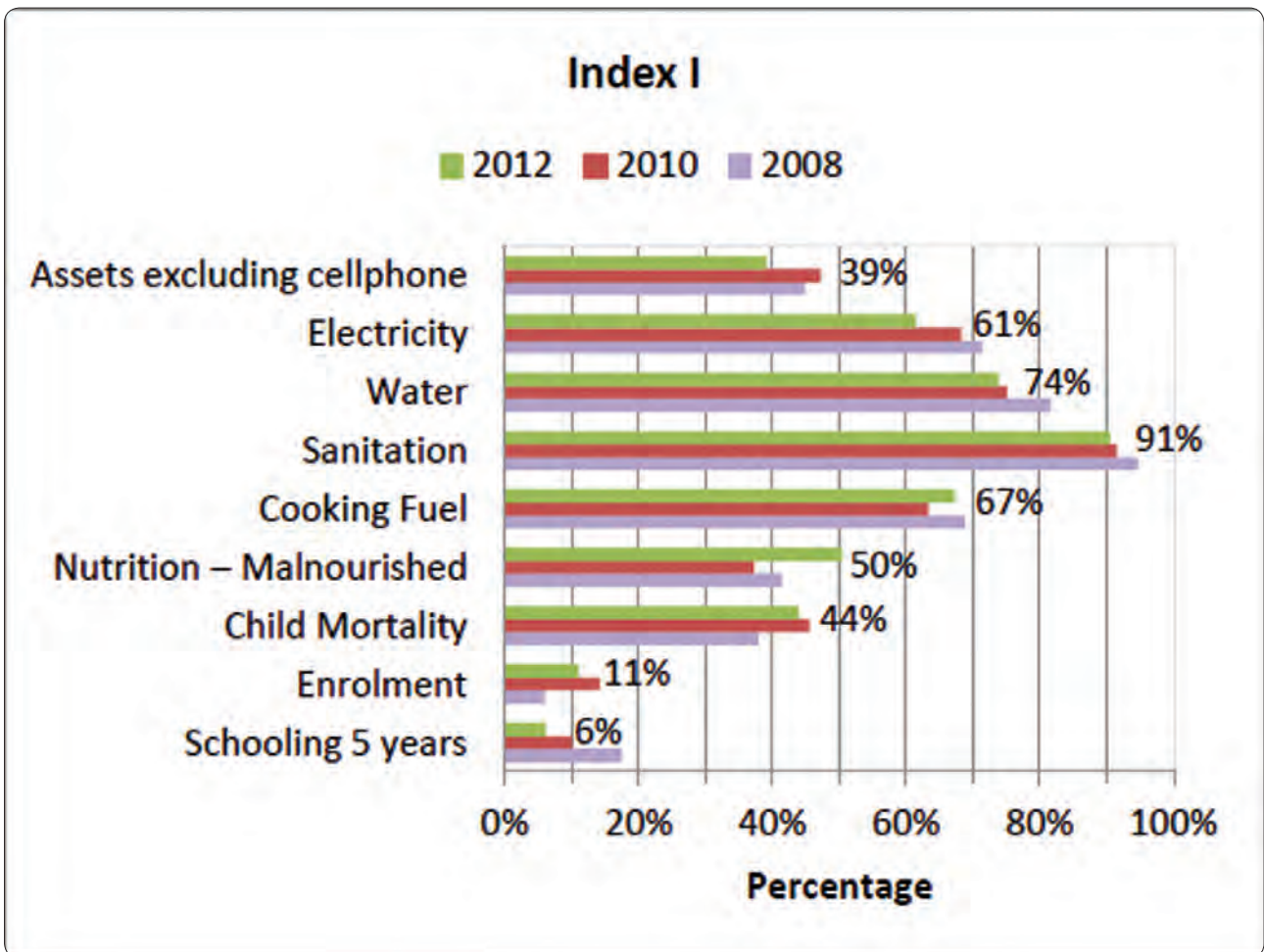
Severity	INDEX I			INDEX II			INDEX III		
	2008	2010	2012	2008	2010	2012	2008	2010	2012
0% - 33.33%	88.00%	88.10%	90.68%	83.88%	86.18%	89.46%	51.70%	43.92%	50.02%
33.34% - 50%	10.25%	10.25%	7.65%	10.91%	9.45%	8.20%	28.80%	28.99%	26.99%
> 50%	1.75%	1.65%	1.68%	5.11%	4.36%	2.34%	19.50%	27.10%	23.00%
	100%	100%	100%	100%	100%	100%	100%	100%	100%

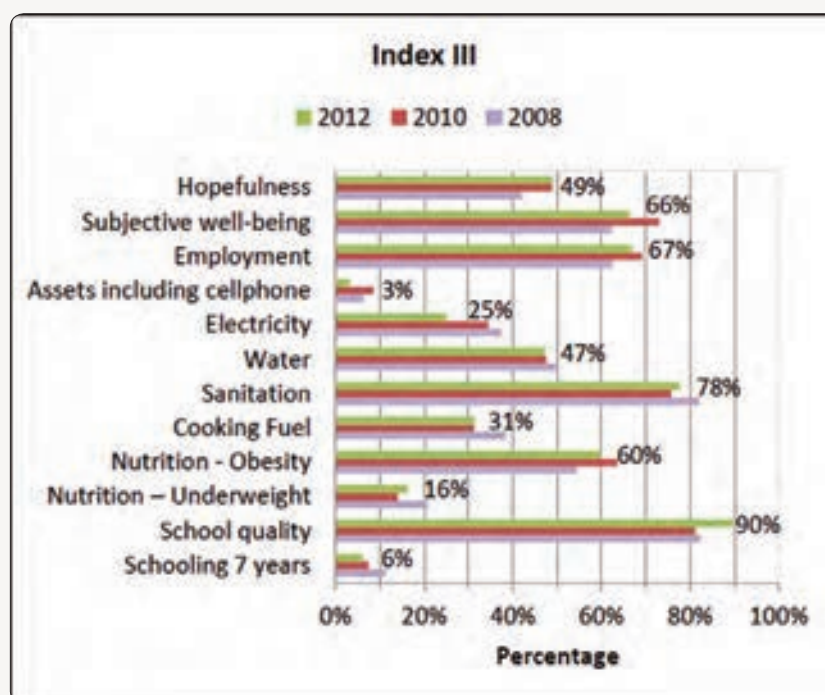
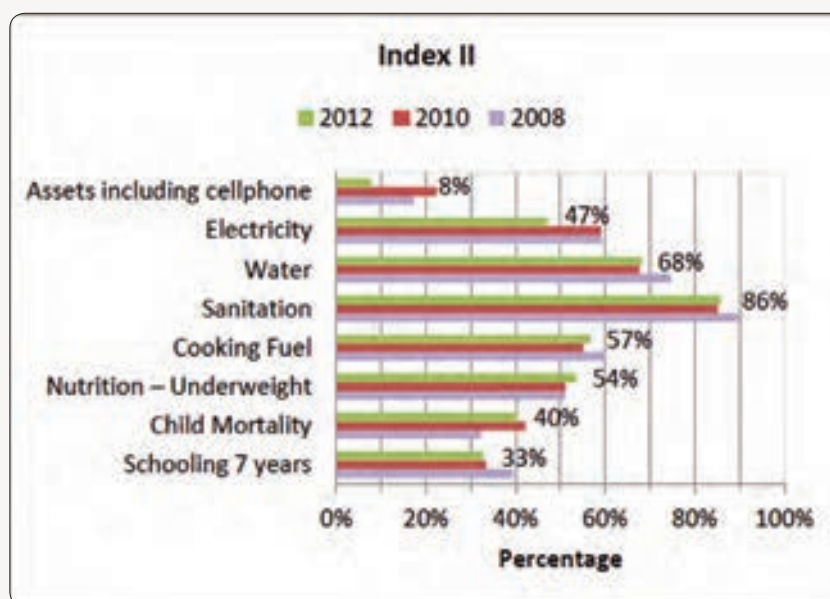
Notes: Own calculations using NIDS Wave 1, 2 and 3. Poverty rates were calculated for the sample of children aged 18 or younger in 2012 and who remained in the sample throughout the three years (data have been weighted using panel weights). Table reports percentage of sample in each category.

For a more detailed breakdown of the main causes of multidimensional poverty among children over the period, Figure 2.4 below shows the average proportion of MPI poor children that is deprived in each of these indicator dimensions. For Indices I and II the greatest deprivation is in terms of basic amenities, such as sanitation³⁴, electricity and water. Although substantial increases in access to all these services have been achieved during the past decade, poor children often live in households that have been excluded from the roll-out of these services.

³⁴ See Table A1.1 in Appendix 2.1 for a definition of ‘inadequate sanitation’.

Figure 2.4: Deprivation of MPI poor children for each indicator 2008, 2010 and 2012





Notes: Own calculations using NIDS Wave 1, 2 and 3. Poverty rates were calculated for the sample of children aged 18 or younger in 2012 and who remained in the sample throughout the three years. The figures show the proportion of MPI poor children who are deprived in each indicator for each model. To avoid cluttering, data labels are only presented for 2012.

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Basic amenities also rate high as a dimension of deprivation amongst the poor as when using Index III. However, when using Index III to identify MPI poor children, access to the labour market and the household's life satisfaction also rank as significant dimensions of deprivation. Of particular significance for the consideration of childhood poverty traps is the finding that nearly 90% of poor children attend a school in quintile 1, 2 or 3, or live in a household where another child attends such a school.

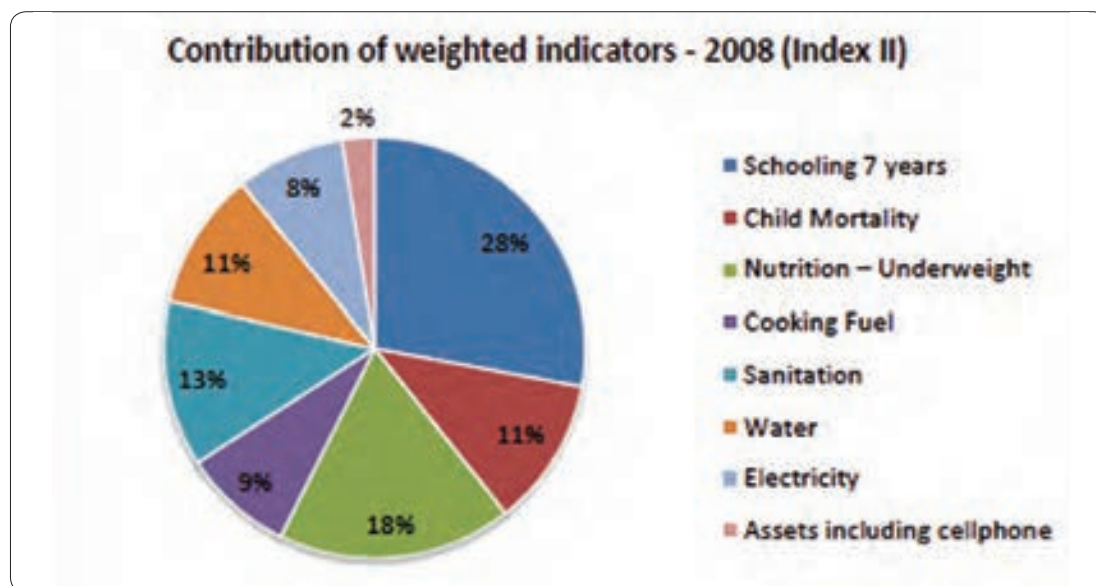
Figures 2.5A & B show the contribution of the weighted indicators to Index II and Index III for each of the years. Indicator contributions are a function of the number of children deprived in a given indicator as well as the weight that has been allocated to the indicator. This makes it possible to identify the indicators which require policy intervention most urgently. The formula used to derive this measure takes the following form:

Where the contribution of each indicator is a function of the weight of the indicator (w_i); the censored headcount of indicator (h_i) (which is the number of children who are both MPI poor and deprived in terms of indicator divided by the total sample); and the MPI.

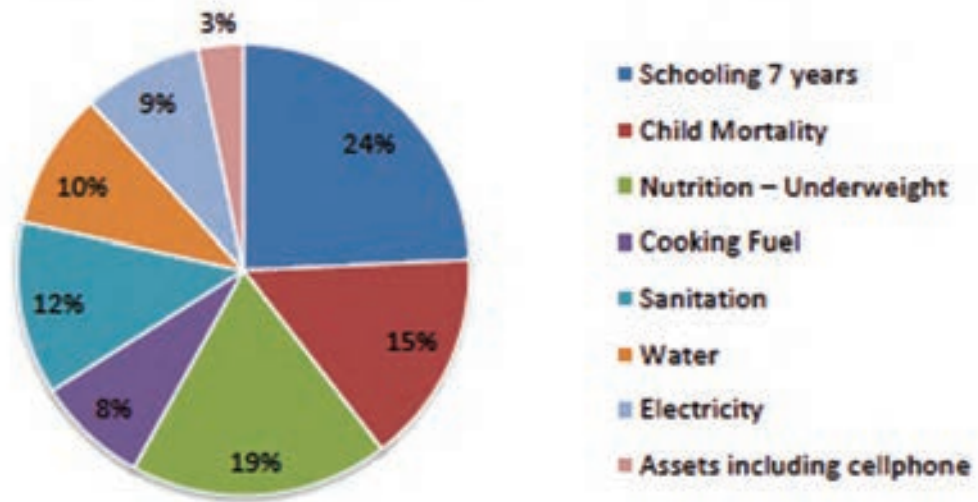
For Index II (Figure 2.5A), the schooling indicator made the largest contribution, but its contribution diminishes over time. The large contribution of schooling in Index II is partly as a result of the large weighting attached to it. The second largest contributor is nutrition, whose contribution increases slightly from 2008 to 2012.

Considering Index III (Figure 2.5B), the largest contribution is made by the employment indicator. This is partly as a result of the high weighting of this indicator and also due to the high levels of unemployment (more than 70% of MPI poor children live in households with no employed individuals). The second largest contributor to this deprivation index is school quality. Also noteworthy is the relative importance of subjective wellbeing and hopefulness which, in combination, has a contribution score of 24%.

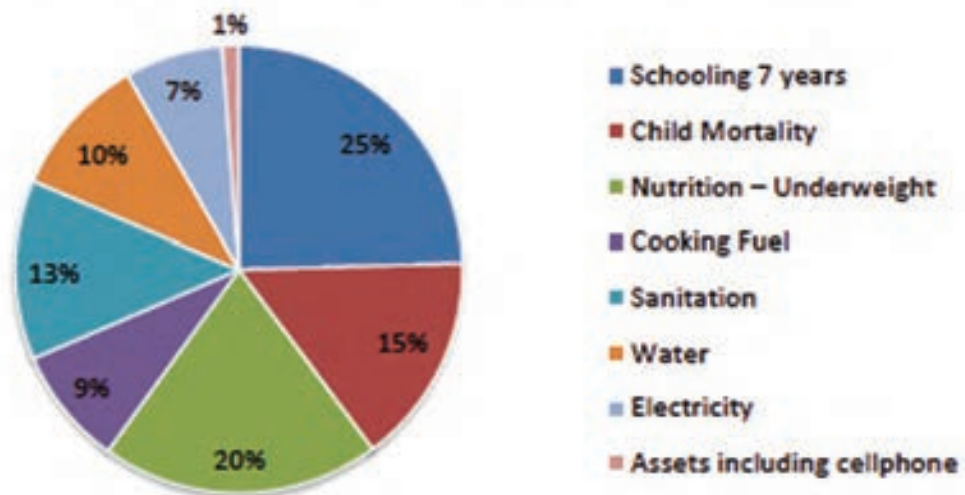
Figure 2.5A: Contribution of weighted indicators to MPI 2008, 2010 and 2012 (for Index II)



Contribution of weighted indicators - 2010 (Index II)

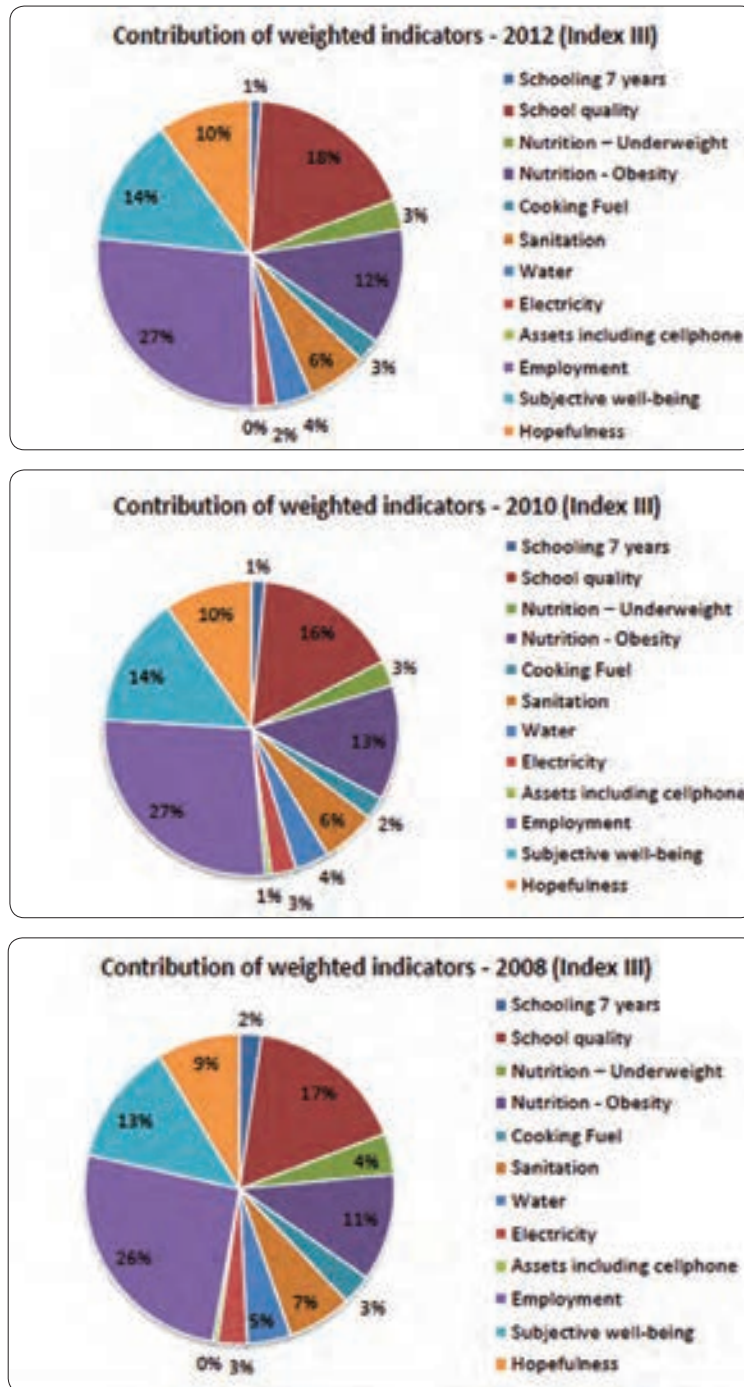


Contribution of weighted indicators - 2012 (Index II)



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Figure 2.5B: Contribution of weighted indicators to MPI 2008, 2010 and 2012 (for Index III)



Notes: Own calculations using NIDS Wave 1, 2 and 3.

2.3.2 The overlaps between monetary poor, structurally poor and MPI poor children

As a check on the robustness of the MPI measure, it is useful to examine the overlap between children who have been identified as being MPI poor and children who have been identified as being income poor as well as in structurally poverty (defined here as being poor in all three waves). Table 2.5 below compares MPI poor children as identified using Index II and III for each of the years.

Table 2.5: Overlap between MPI poor and monetary poor children, 2008, 2010, 2012 (Index II and III)

	MPI poor children - Index II			MPI poor children - Index III		
	2008	2010	2012	2008	2010	2012
Average monthly per capita household income (2010 Rand)	357.48	492.43	442.74	422.51	466.36	638.22
Average monthly per capita household expenditure (2010 Rand)	301.68	354.77	280.95	377.93	406.91	354.69
Proportion below monetary poverty line (R575)	0.86	0.83	0.77	0.82	0.82	0.75
Proportion in structural poverty	0.99	0.99	0.98	0.97	0.96	0.96

Notes: Own calculations using NIDS Wave 1, 2 and 3. Poverty rates were calculated for the sample of children aged 18 or younger in 2012 and who remained in the sample throughout the three years (panel weights used) . The table indicates the proportion of children classified as being MPI poor using the one-third threshold as poverty line.

Table 2.5 shows significant overlap between the three measures of poverty, with almost all MPI poor children being poor in terms of the money-metric poverty measure as well as being structurally poor. In addition, the mean per capita household income and expenditure of the households within which these children reside are for most years below the monetary poverty line (R575), which provides a good indication of the fact that these children who have been identified are actually poor.

Table 2.6 shows the geographic distribution of MPI poverty for South African children over the time period. The table breaks down the MPI poverty incidence or headcount for Index II and Index III.

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Table 2.6: Geographic break-down of incidence of MPI poverty among children 2008, 2010, 2012 (Index II and III)

	MPI Poverty Incidence (headcount) Index II			MPI Poverty Incidence (headcount) Index III		
	2008	2010	2012	2008	2010	2012
Rural	0.25	0.20	0.17	0.69	0.78	0.69
Urban	0.06	0.07	0.04	0.26	0.33	0.31
Western Cape	0.03	0.03	0.04	0.16	0.20	0.16
Eastern Cape	0.23	0.19	0.15	0.62	0.66	0.74
Northern Cape	0.12	0.12	0.09	0.24	0.28	0.24
Free State	0.07	0.09	0.07	0.33	0.41	0.47
KwaZulu Natal	0.24	0.24	0.15	0.68	0.74	0.68
North West	0.17	0.15	0.11	0.44	0.45	0.42
Gauteng	0.06	0.06	0.04	0.27	0.32	0.26
Mpumalanga	0.11	0.07	0.12	0.30	0.62	0.43
Limpopo	0.19	0.12	0.11	0.68	0.75	0.57

Notes: Own calculations using NIDS Wave 1, 2 and 3. Poverty rates were calculated for the sample of children aged 18 or younger in 2012 and who remained in the sample throughout the three years (panel weights used). The table shows the proportion of children classified as MPI poor using the one-third threshold as poverty line.

As expected, rural MPI poverty for the sample of children was much higher than in the urban areas. Those provinces with the highest levels of monetary poverty among children also had the highest incidence of MPI poverty. These were the Eastern Cape, KwaZulu-Natal and Limpopo.

Differences in poverty estimates between the two Indices are also clearly observed in the table. The poverty headcount is much lower using Index II when compared to estimates derived using Index III. Index II moreover seems to provide evidence of a decline in poverty over the period, whereas Index III indicates an overall increase in poverty from 2008 to 2010, with a slight decrease between 2010 and 2012. The inclusion of different indicators in Index III such as employment and life satisfaction (both of which declined during the recessionary period of 2008-2010) are very likely driving this trend.

Accounting for the employment status of adult household members and the subjective wellbeing of children, the MPI indicates that 23% of children can be categorised as severely poor, meaning that they are deprived in at least half of the indicators included in the index. Nearly all of the children identified as being poor along the monetary dimension are also defined as MPI poor.

The composite measure of poverty is useful as a complement to traditional money-metric poverty estimates given its more comprehensive conception of poverty. A further advantage is that MPIs can be decomposed allowing for determination of the relative severity of deprivation between the categories that make up the index. The high percentage of deprived children without access to piped water or sanitation, for instance, portends adverse health outcomes for these children. The high contribution of schooling (in Index II) and school quality (in Index III) to overall deprivation too presents a clear opportunity for enhancing welfare by improving the quality of education. Index I and II estimate the proportion of severely poor children in 2012 to be 1.7% and 2.3% respectively while Index III estimates the share to be 23%. This suggests that a large share of South African children live in households with unemployed adults, are receiving a low-quality basic education, and are not hopeful about the future. This mix of deprivations threatens to cause a long-term low-welfare equilibrium for these households. The remainder of this chapter presents a more in-depth report on the current status of South African children along the five dimensions that may serve as poverty trap mechanisms.

2.4 HEALTH

The salience of good health for early childhood development is indisputable. Adverse health circumstances such as inadequate nutrition or exposure to disease during early childhood threaten survival and may greatly harm the life chances of children through reduced cognitive capability formation and learning, and could lead to the development of chronic health deficiencies. Such outcomes portend a disadvantage in the labour market in adulthood. As demonstrated in the previous section, poor health status among children is associated with money-metric poverty as well as overall deprivation more generally. South African policymakers face several daunting health challenges including the AIDS pandemic, high levels of malnutrition among infants and hunger among school-aged children, and the expansion of basic adequate health services to all citizens.

2.4.1 HIV/AIDS

HIV and AIDS is a particularly harmful mediator of poor life outcomes as it operates both directly on children through mother to child transmission as well as indirectly through the morbidity and eventual death of adult household members. The high prevalence of HIV³⁵ infections in South Africa particularly raises concerns related to these two pathways for continuing welfare deprivation among the poor. Children born with HIV begin their lives at a great disadvantage, with many not surviving their first five years. The Morbidity and Mortality Report (CoMMiC, 2012) indicates that more than 50% of under-five children who die in hospitals are infected with the virus. Reducing the rate of new infections and limiting the chances of mother to child transmissions are clear policy targets which have received much attention³⁶.

The epidemic also impacts on children and households through the loss of a productive adult. Using data gathered by the African Centre for Population Health Studies³⁷, Ardington et al. (2012) consider the consequences of the death of an adult for a household. In particular, they try to determine whether households who suffer a death due to AIDS differ in certain characteristics relative to households who suffer a death due to other causes. Their multivariate regression analysis reveals that having low educational attainment is significantly correlated with AIDS related death, implying that individuals with lower levels of education have a higher likelihood of contracting HIV

³⁵ StatsSA estimates that 10% of all South Africans are currently living with the disease. The ante-natal survey report (2012) estimates that 29.5% of pregnant women (aged 15-49) are infected with HIV. Cluver (2011: 27) furthermore claims that in 2011, 850 AIDS related deaths occurred in South Africa per day.

³⁶ Ardington et al. (2012: 16) present some tentative evidence indicating that the intensification of the provision of antiretroviral treatment coincided with reduced AIDS-related mortality in a KwaZulu-Natal region.

³⁷ Beginning in the year 2000, the centre maintains a record on various aspects (including asset ownership, education levels of household members, and death) of 11 000 households in KwaZulu-Natal (Ardington et al., 2012: 2).

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relative to individuals with more years of educational attainment. They also find that households in which a member dies due to AIDS are, on average, more impoverished ex ante³⁸ (prior to the death of the affected household member) than households suffering non-AIDS related deaths. Lower educational attainment and low asset levels are thus risk factors for adult HIV/AIDS contraction which, in turn, lowers the life chances of their children. Ardington et al. (2012: 18) advocate a better understanding of the mechanism through which more education translates into lower risk of contracting HIV so as to improve on the effectiveness of awareness campaigns. In order for the poor to better cope with the loss of assets and income that follows from an AIDS related death in the household, Collins and Leibbrandt (2007) argue that greater access to insurance by poor households may improve coping strategies for dealing with family death.

The harm imposed on children's welfare through high HIV and AIDS prevalence goes beyond the risk of disease transmission and the loss to household income from the passing of a wage earner and extends to the child's psychological wellbeing and socio-emotional development. In an ethnographic study undertaken in Musiphumelele, an informal settlement outside Cape Town, Bray and Brandt (2007: 8) describe the inability of a mother (a participant in their study) to engage socially with her children due to her AIDS induced weakness. Poorer childcare due to adult morbidity may thus impede children's socio-emotional development – which relies on active engagement, play and nurturing by adults – that is required for overall human capital development. Lachman et al. (2013) attempt to measure differences in the quality of parenting provided by HIV positive caregivers compared to similar but uninfected caregivers. They find that AIDS infection is associated with 'negative parenting'³⁹ as infected parents are less attentive to their children, provide less stimulation and are less encouraging than non-infected parents (Lachman et al., 2013). A further implication of having an HIV infected parent in the home is the potential for a shift onto the child of the household duties an sick adult is unable to perform (Richter, 2005).

Cluver (2011) and Cluver et al. (2012) also find adverse consequences for the psychological wellbeing of children whose parents succumb to AIDS to be more acute when compared to children orphaned through non-AIDS related causes. Assessing data collected in several sub-Saharan African countries, she finds that children orphaned as a result of AIDS are 67% more likely to suffer from post-traumatic stress disorder (PTSD) than other orphaned children (Cluver, 2011: 27; Cluver et al., 2012: 367). Interviews with South African AIDS orphans reveals that stigma around the disease remains prevalent and that children orphaned through AIDS are highly likely to suffer social exclusion, reduced concentration in school and a higher risk of contracting HIV through caring for an infected caregiver (Cluver, 2011: 28). There is thus evidence for the multiple debilitating implications of higher mortality risk, reduced financial and non-financial investment in children, reduced learning capacity, greater risk of social exclusion and higher levels of PTSD and other psychosocial maladies resulting from South Africa's HIV and AIDS epidemic⁴⁰.

2.4.2 Malnutrition

Accompanying disease epidemics, malnutrition serves as another threat to child health and survival. The 2012 report by the Committee on Morbidity and Mortality in Children under-five suggests that malnutrition was among the top five causes of mortality for South African children (CoMMiC, 2012). As with disease, children who survive early age malnutrition do not necessarily escape its long-term effects. Vorster and Kruger (2007), for instance, argue that poverty-induced early-life under-nutrition is associated with higher risk of cardiovascular disease. For children that have experienced malnutrition before the age of two, the impact on their physical or cognitive abilities

³⁸ That is, prior to the death of the affected household member.

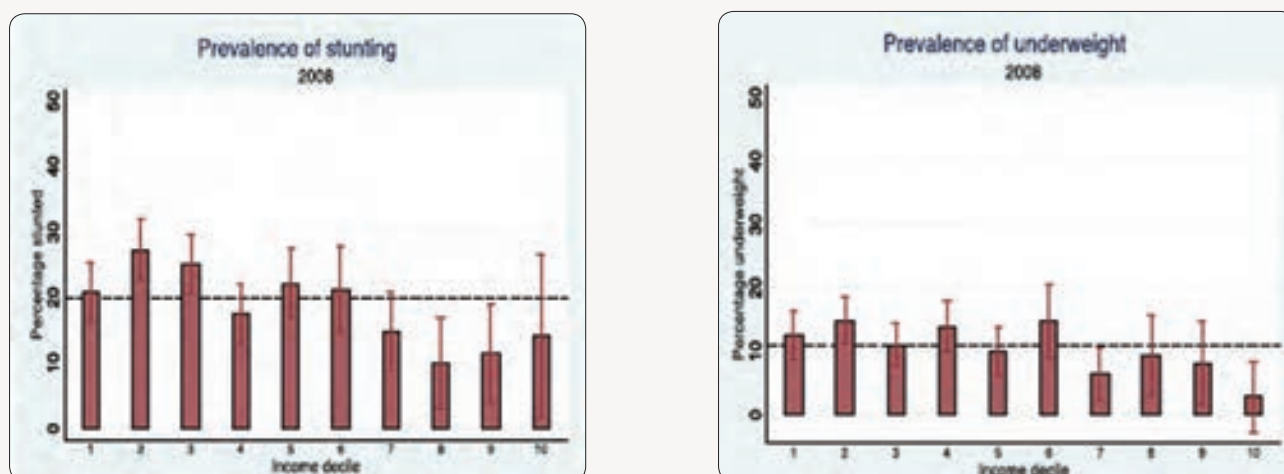
³⁹ This result was determined by conducting interviews with the children. One example of a question included is: "Your caregiver says you have done something well" (Lachman et al., 2013: 3). Cluver (2011: 28) also reports that children living with an AIDS infected caregiver are more likely to suffer physical and emotional abuse than children living with healthy caregivers while Cluver et al. (2011) finds that youth who were either AIDS-orphaned or affected (living with an HIV infected parent) are more likely to engage in transactional sex.

⁴⁰ Similar implications likely hold due the high prevalence of tuberculosis. A government report states that "South Africa currently ranks the third highest in the world in terms of the TB burden" (National Department of Health, 2012).

could be irreversible (Lancet, 2008). Early childhood malnutrition has been linked to poor health and educational performance in later years (Mendez and Adair, 1999; Glewwe, Jacoby and King, 1999). Simple remedial interventions can, however, mitigate this channel for lifelong deprivation. It has been found, for instance, that transfers to poor households in South Africa do result in improved child health outcomes (measured by height-for-age and weight-for-height) due to improved nutrition (Duflo, 2000).

Faber and Wenhold (2007) emphasise that malnutrition should be viewed more holistically than considering it to be either over- or under-nutrition. They argue that micronutrient deficiency is pervasive among children in South Africa, especially in the poorer segments of society, and often goes unchallenged owing to its effects not being immediately evident. They cite the lack of diet diversity among children aged 1 to 9 years (as found in the National Food Consumption Survey) as evidence for low micronutrient intake (Faber and Wenhold, 2007: 396). Several other major surveys have confirmed the dangerously high prevalence of, in particular, vitamin A deficiencies amongst South African children (Labadarios and Van Middelkoop, 1995; Labadarios et al., 2008; Labadarios et al., 2005). Vitamin A deficiencies have been found to be more pervasive among groups of low socioeconomic status. Figure 2.6 uses the NIDS data to show the strong association between income decile and the likelihood that children will be stunted or underweight.

Figure 2.6: Prevalence of stunting and underweight across income deciles, 2008



Notes: Own calculations using NIDS. The dashed lines show the South African averages.

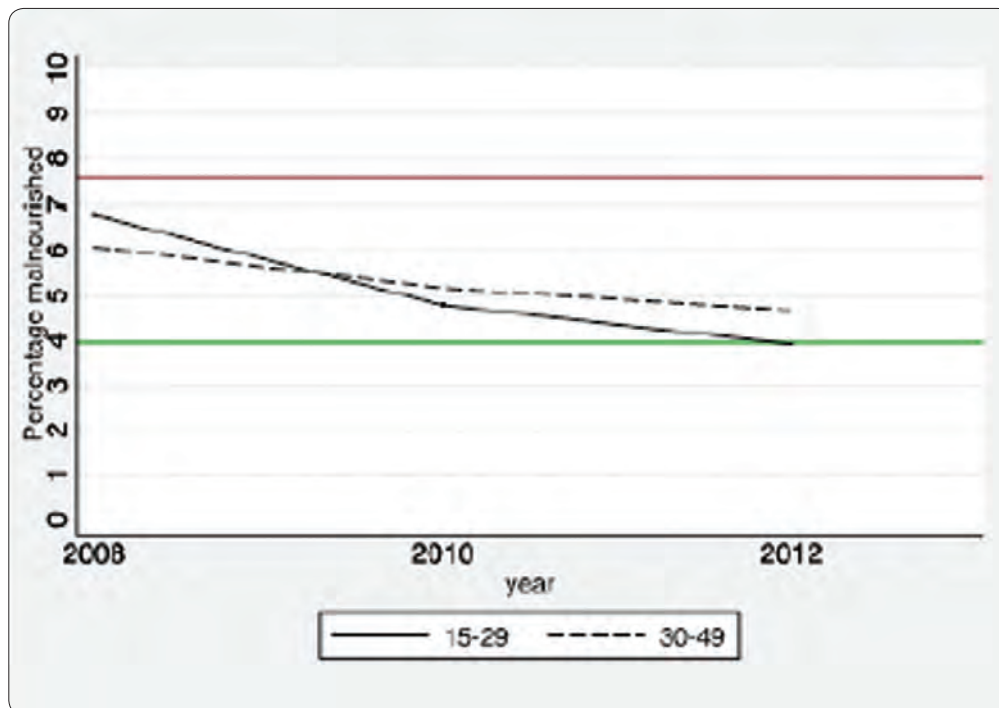
The government has long recognised the negative implications of malnutrition generally and micro-nutrient deficiency in particular. Since 2003, it is mandatory to fortify certain foods. All wheat flour and maize meal products are to be fortified with eight different vitamins and minerals, which range from vitamin A to Zinc and folic acid (National Department of Health, 2003). Maize meal and wheat flour were chosen in order to target women, infants and very young children specifically. Other interventions targeting malnutrition have also been instituted. The “Roadmap for Nutrition in South Africa 2013 – 2017”, a programme developed by the Department of Health in 2012, emphasises

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the importance of sufficient intra-uterine nutrition and nutrition for children up to two years of age. One important factor for protecting child health is maintaining good maternal health and nutrition. Under-nutrition amongst pregnant women could lead to foetal growth restriction or preterm birth with an increased likelihood of neonatal death (Kalk, et al., 2009; Black, et al., 2013), stunting of the child by age two (Black et al., 2013), and an increased risk of mortality amongst children under five years of age (Nannan et al., 2007).

There are various ways to potentially measure maternal under-nutrition. One method is to calculate the malnutrition amongst women of two childbearing age groups (Nannan et al., 2007). Women between the age of 15 and 29 (age group 1) or 30 and 49 (age group 2) with a body mass index (kg/m²) of less than 20 are considered underweight. In Figure 2.7, the solid black line and the dashed black line show maternal under-nutrition from 2008 to 2012 for the two respective age groups. Using the panel nature of NIDS, it is also possible to calculate the BMI of women in one wave, who were pregnant in the following wave. The horizontal red line represents the percentage of women that were pregnant in 2010, and underweight in 2008. The horizontal green line represents the percentage of women who were pregnant in 2012 and underweight in 2010. As is evident from the figure, the rates of under-nutrition amongst pre-pregnant women (red and green lines) are similar to the rates of under-nutrition amongst women of childbearing age.

Figure 2.7: Maternal under-nutrition in South Africa, 2008-2012



Notes: Own calculations using NIDS 2008-2012. The red line shows actual underweight in 2008, the green line in 2010.

Tables 2.7 shows the change in nutritional status for children aged 0-3 years. The table combines data from the PSLSD 1993 and NIDS 2008 and information from the recent South African National Health and Nutrition Examination Survey (SANHANES-1) report conducted by the HSRC in collaboration with the Medical Research Council (MRC) (Shisana et al., 2013). All three surveys were designed to be nationally representative, allowing for comparisons across time. With the exception of the 'wasting' category, measures are consistent across the surveys.

Table 2.7: Change in the nutritional status of children between 0 and 3 years of age⁴¹

	Stunting	Underweight	Wasting ²	Overweight
1993	30.3%	20.0%	13.6% (6.8%)	17.5%
2008	26.3%	11.2%	7.4% (8.7%)	18.7%
2012 ¹	26.4%	5.9%	2.7%	Not available

Notes: Own calculations using PSLSD 1993 and NIDS 2008.1 Taken from the SANHANES-1 report (Shisana et al., 2013).2 The SANHANES report adopts a slightly different measuring methodology for determining wasting (BMI-for-age) than was used for the other data sets (weight-for-height). Estimates using the SANHANES method are shown in brackets.

The prevalence of overweight has become a growing concern internationally. De Onis (2010) reports that the prevalence has increased globally from 4.2% in 1990 to 6.7% in 2010 (cited in Shisana et al., 2013: 210). Child overweight is especially a matter of concern, given the threat of obesity and its associated health risks that may ultimately restrict the realisation of developmental potential. Table 2.7 shows a marginal increase in overweight prevalence from 1993 to 2008 (from 17.5% to 18.7%). While the SANHANES-1 report does not provide a figure for the 0-3 age group, it does report that for children aged 2-5 the prevalence of overweight was 20.5% in 2012. Wittenberg (2013) suggests that increases in BMI accompany increases in economic welfare for black South Africans (particularly among women). From this perspective, an increase in overweight should not be surprising given the reduction in poverty rates observed over the past twenty years, though from a public health perspective the rise in overweight and obesity levels remains a problem. Racial differences are also evident in the income/BMI gradient, with blacks reflecting a monotonic increase in BMI as incomes rise while whites exhibit a decline in BMI for higher incomes (Wittenberg, 2013). This indicates sub-optimal dietary choices by blacks that are perhaps related to cultural preferences⁴², dietary knowledge⁴³ and lifestyle choice that undervalue exercise.

Table 2.7 further shows that wasting (weight-for-height) was lower in 2012 for children aged 0 to 3 years, while the percentage of children who were underweight has also seen a substantial decline between 1993 and 2012. Stunting amongst young children declined between 1993 and 2008 and seems to have stabilised around 26%. Roughly a quarter of children in South Africa therefore receive inadequate nutrition during their early-life. The reduction in wasting and underweight suggests that acute malnutrition among children is declining, which again may be an outcome of higher economic wellbeing among South Africans. The stubbornly high level of stunting reflects the fact that chronic malnutrition has not been affected as dramatically, if at all, as the incidence of severe malnutrition. This could be due to factors such as inadequate sanitation and water access which facilitates the transmission of diarrhoea, thus inhibiting nutrient digestion. To the extent that the income constraint has been loosened somewhat with time, it may also suggest sub-optimal nutritional practices by parents of young children.

⁴¹ The use of anthropometric indicators available in household data in order to measure neonatal outcomes is complicated. One measure, low birth weight (LBW) is the result of either poor development intrauterine or preterm birth (Ohlsson and Shah, 2008a: 1) However, the relationship between maternal BMI and LBW has been found to vary across studies (Elshibly and Schmalisch, 2008); (Ohlsson and Shah, 2008b) The relationship between socio-economic status and LBW in South African data has also been found to be unclear and complex (Ardington and Gasealahwe, 2012: 6)

⁴² Wittenberg (2013: S81) suggests that, among many blacks, there appears to be a desire to be heavier.

⁴³ Shisana et al. (2013: 180) report that a quarter of survey respondents disagreed with the statement that dietary habits influences weight.

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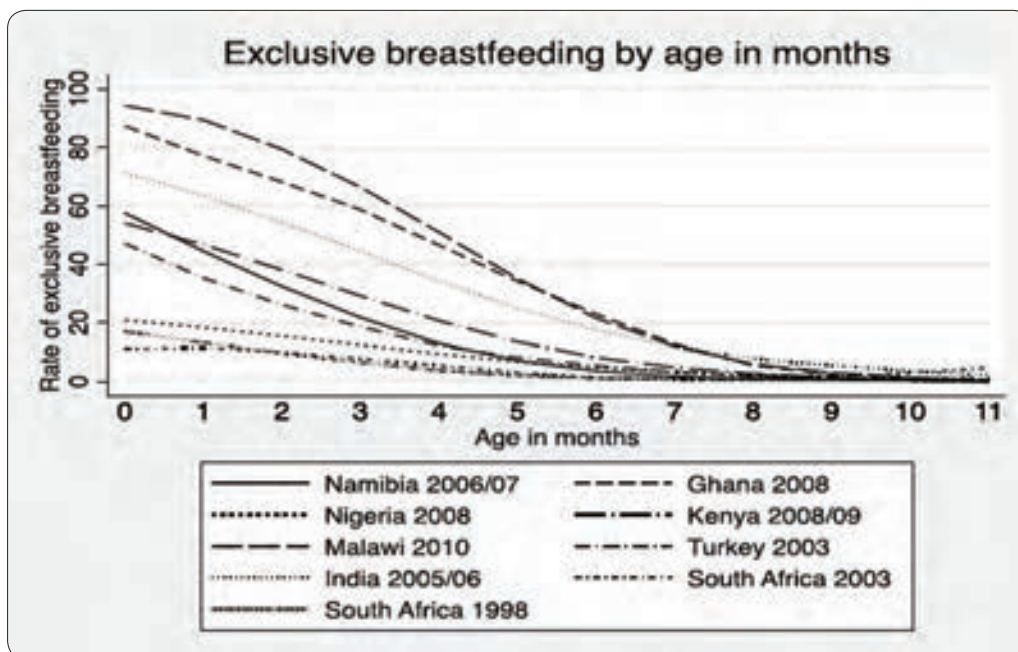
2.4.3 Breastfeeding

Breastfeeding, especially exclusive breastfeeding, is often advocated as the optimal means of providing early nutrition, due to its beneficial impact on infant health (Kramer et al., 2001). Breastfeeding reduces exposure to contaminated food and water sources thereby decreasing the probability of infant mortality due to diarrhoea. Early initiation of breastfeeding and subsequent exclusive breastfeeding have also been found to decrease neonatal mortality (Edmond et al., 2006) and the incidence of infectious diseases such as acute respiratory infection (Arifeen et al., 2001).

In South Africa approximately 3 out of every 4 mothers reported that they breastfed their babies, but only 8% of women breastfed exclusively for the first six months. The majority of mothers appear to follow a mixed feeding regime, combining breastfeeding with formula feeding. In Figure 2.8, the rate of exclusive breastfeeding by age in months is compared across low- and middle-income countries. The South African rate, along with the Nigerian rate, is one of the lowest. Ghana, Malawi and India have fairly high exclusive breastfeeding rates for the first four months of the infant's life.

After six months, the rate of exclusive breastfeeding plummets for all countries, which is in accordance with the recommendations from the WHO and UNICEF.

Figure 2.8: The rate of exclusive breastfeeding in low- and middle-income countries

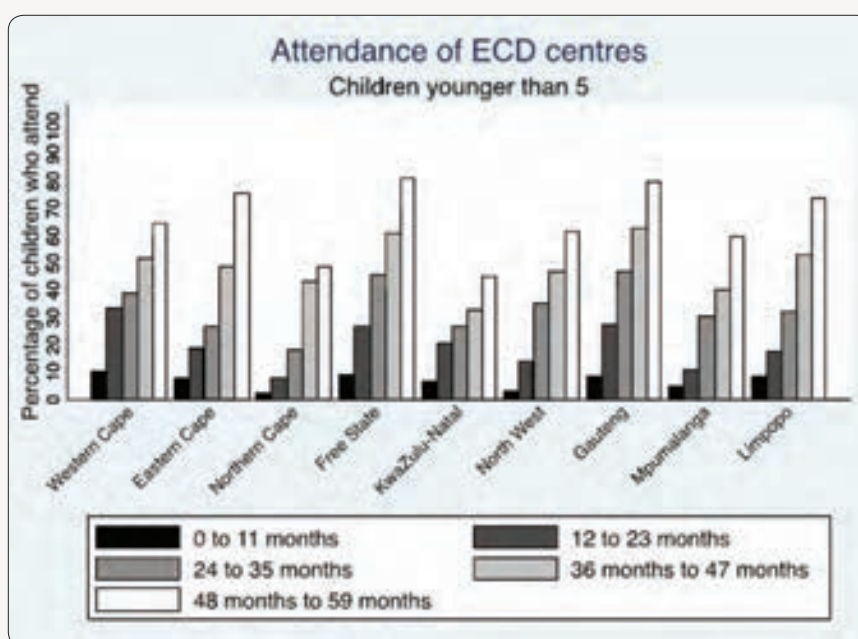


Notes: Compiled from DHS reports of the respective countries.

The lack of exclusive breastfeeding in South Africa warrants further attention. Travelling distance to work and the nature of work may contribute to the low rates of breastfeeding because these create difficulties with proximate childcare facilities and extending maternity leave. However, research shows that despite such structural constraints, support and information on the benefits of exclusive breastfeeding can help to boost breastfeeding rates. Bland et al. (2008) and Desmond et al.(2008) find that counselling and support significantly increased rates of exclusive breastfeeding for the first four months.

Another potential target area for improving child nutritional status is through Early Childhood Development (ECD) programmes, as these provide a useful institutional platform for nutritional intervention (Hendricks et al., 2013). Around half of children aged three and four years were enrolled in ECD programmes⁴⁴, but enrolment was skewed in favour of white children and children from Gauteng or the Western Cape (Biersteker, 2012: 54). Figure 2.9 below shows the provincial coverage of ECD facilities for children aged between 0 and 59 months in 2012. Children from the Northern Cape and KwaZulu-Natal have the lowest attendance rate, whilst the highest attendance rate is in the Free State and Gauteng.⁴⁵

Figure 2.9: Attendance of ECD centres for children younger than 5 years



Notes: Own calculations using GHS 2012.

2.4.4 The National School Nutrition Programme (NSNP)

Under-nutrition has deleterious effects on learning capabilities for school-aged children by reducing energy levels and inhibiting concentration. Steps to mitigate the problem of undernourishment of learners were taken early after

⁴⁴ Evidence from the General Household Survey shows that in 2010 only 54% of three to four year old children accessed ECD facilities (Biersteker, 2012:54). Attendance of ECD centres by this age group during 2012 was only around 48%.

⁴⁵ Some of these cell sizes may be small because the analysis is broken down by age and province. Consequently the figure should be seen as only broadly suggestive of the underlying patterns and one should treat the individual estimates with caution.

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South Africa's transition to democracy. The National School Nutrition Programme (NSNP) was launched in 1994 as one of the key priorities of the country's first democratically elected government. While the programme has been a success, there is room for considerable improvement in monitoring and evaluating this programme. Government and non-government organisations could make better use of the publicly available data in assessing programmes and keeping government organisations accountable.

Unless there is good use of data, and continual checking and verification of service delivery trends by a variety of stakeholders, there is a risk that false impressions, possibly overly optimistic or overly pessimistic ones, will become widespread, which in turn weakens the country's ability to take the right actions to address poverty. A further risk is that insufficient interrogation of the available service delivery statistics will lead to a mistrust of the available statistics, and a sense that no factual basis exists from which to plan.

Over the years, the NSNP has expanded to include more schools, with the starting point in 1994 having been the poorest schools and just the primary grades (1 to 7). By 2012, the programme was designed to cover all schools in poverty quintiles 1, 2 and 3, at the primary and secondary levels, from grade R to 12, so roughly three-fifths of the system⁴⁶.

The programme stipulates that all learners in a targeted school should receive a meal, on every school day, before 10 in the morning. The meal should comply with nutritional standards laid down by the Department of Health (Department of Basic Education, 2013b: 7). The focus in the analysis that follows is on state-funded meals in schools. The fact that there should have been a systematic provision of meals outside of the national programme in the recent past is of course interesting, and could pose accounting problems, but that is not the key concern here.

Analysis of publicly available household data shows that by 2011 around 73% of school learners were receiving school lunches through the government's nutrition programme. These 73% are made up of 68% receiving a meal every day, and 5% receiving a meal less frequently. Given that these data were sourced from household surveys, they are likely to be a credible reflection of the actual numbers of meals being provided. Government's figures on the coverage of the nutrition programme reflect similar numbers to what the surveys reveal, although they are slightly over-stated, by around four percentage points. Moreover, they do not acknowledge that there is a problem with irregular coverage. There is thus room for improvement in the calculation of official school nutrition figures.

It should be of great concern that around 20% of school learners were experiencing hunger some of the time in 2011. By far most of these learners were recipients of school nutrition, yet hunger clearly occurs outside of the school day. The situation has improved, however. In 2011 the rate of hunger was only half as much as in 2002. Most of the reduction in the hunger rate occurred between 2002 and 2006.

What is clear is that the reach of the school nutrition programme has increased rapidly. For instance, between 2009 and 2011, the percentage of Grade 12 learners receiving a meal every day through the programme increased from 0% to around 55%.

A standard measure of how pro-poor government spending is, the concentration index, shows clearly that the overall targeting of learners, through their schools, is pro-poor relative to the household's level of poverty: with

⁴⁶ For various reasons, the quintiles do not each cover exactly one-fifth of learners. To illustrate, in 2009 quintiles 1, 2 and 3 covered not 60% (three-fifths) of learners, but around 69% of learners (Department of Education, 2009: 93).

around 60% of meals going to the poorest 50% of learners, the poorest half of the child population gets more than their share of the benefit.

Apart from revealing important trends with respect to the nutrition of South Africa's children, the preceding analysis has pointed to things that can be done to strengthen the monitoring of service delivery. As emphasised by the monitoring guide produced by UNESCO (2004), sample-based household data tend to be under-utilised by organisations which need to track social and service delivery trends, including the government, 'watchdog' bodies, research organisations and the media. Household data can assist in verifying statistics obtained through other data sources and allow for the disaggregation of statistics by, for instance, household income and child age.

In monitoring trends, it is often risky to be reliant on one data source. The drivers of increases or decreases in measured outcomes need to be investigated through comparisons across data sources, including administrative data and household surveys. Discrepancies need not be problematic as long as the differences are small. And even where large differences exist, it is best for these to be revealed so that differences may be investigated. The need for increased vigilance of programme effectiveness naturally extends to other, more general government functions, including the various governmental departments.

2.4.5 Health services

Low quality health services have a direct impact on child welfare and are often cited as one reason why South Africa observes poor health outcomes. Solarin and Black (2013) document the experience of women at three public antenatal care clinics in Johannesburg and find evidence of significant constraints on both the demand side (pregnant women) and the supply side (clinics). In particular, half of the women interviewed for the study reported that no "routine checks [blood pressure measurement, blood test, physical exam, offer to test for HIV, etc.] or screening were conducted at their first visit to the clinic", while many women were not booked upon their first visit and asked, instead, to return later. Given the importance of early pregnancy recognition for the wellbeing of the nascent embryo, together with the prevalence of HIV and AIDS infection in South Africa, this is a remarkable oversight in a health care facility (Solarin and Black, 2013).⁴⁷ More generally, audits of deaths of new-borns at public hospitals in South Africa found that up to 50% of perinatal deaths due to intrapartum asphyxia and birth trauma may have been avoided through more astute health care practices and greater administrative efficiency in clinics and hospitals (Saving Babies, 2009).

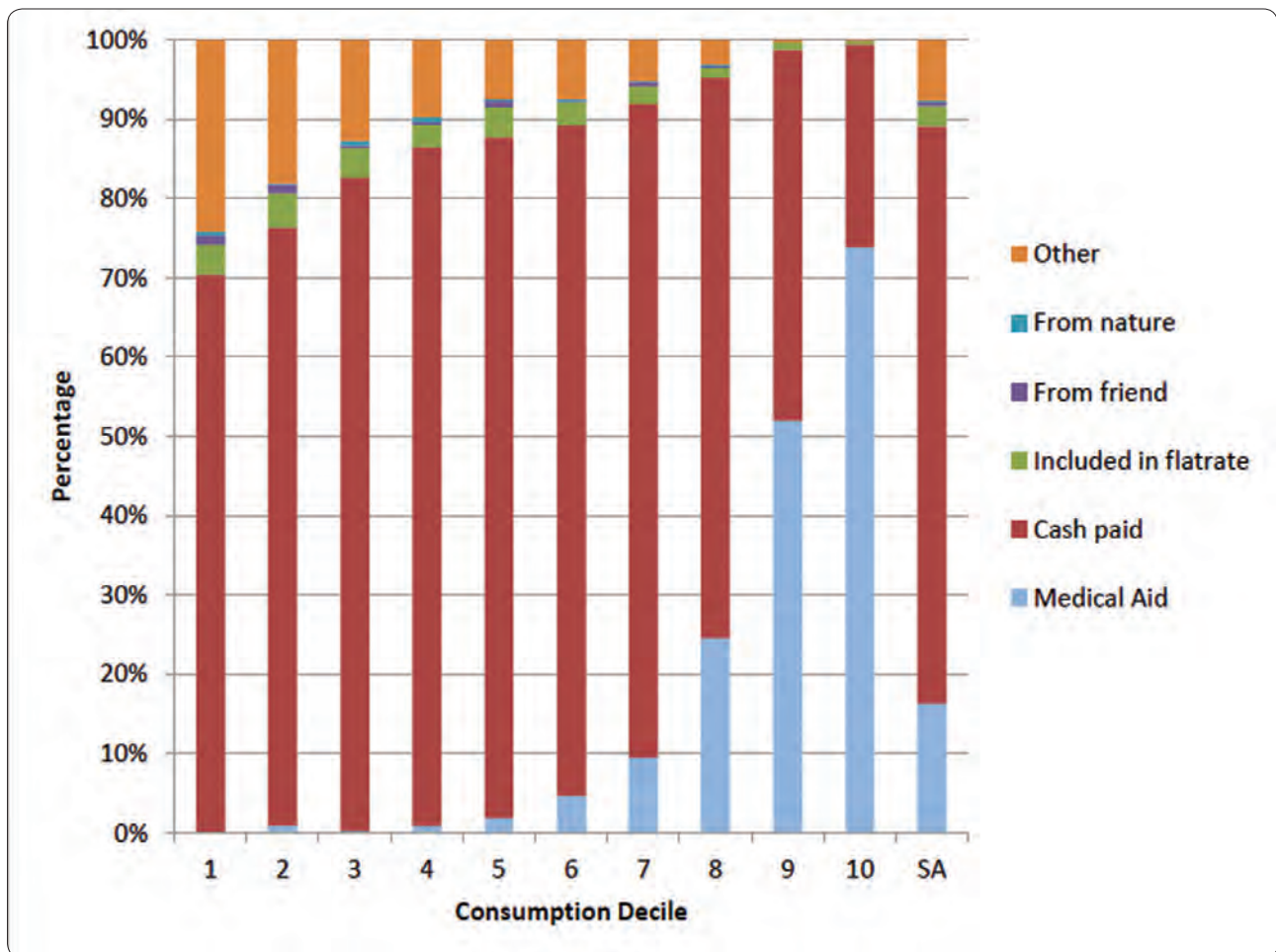
While access to health care has expanded since 1994, both physically with the expansion of the clinic network and in terms of affordability with free primary care, the poor remain more likely to view travel and cost as a barrier to health care services. McLaren, Ardington and Leibbrandt (2013) find that poorer households, on average, live further away from the nearest health care facility than their wealthier counterparts. As a result, these households are less likely to access health services, reducing the chances of "breaking the cycle of intergenerational transmission of health" (McLaren, Ardington and Leibbrandt, 2013: 11). McIntyre et al. (2006) studied the effects of the costs of paying for health care for different households from different socio-economic backgrounds in low- and middle-income countries. They find that households may slip into poverty when faced with high health care costs. A natural implication of this finding is the impossibility for already poor households to escape poverty when health care services are required. Surveys show that roughly one fifth of patients in the poorest quintile pay between R100 and

⁴⁷ Likewise, Sprague, Chersich and Black (2011) monitored four public hospitals and track how staff and equipment shortages in clinics interfere with HIV testing and the administration of antiretroviral therapy. They list shortages in terms of the staff numbers as a problem, but also complain about deficiencies in terms of skills and performance of staff (Sprague, Chersich and Black, 2011).

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R150 per visit to see a private provider, a statistic that is worrying both in terms of the financial burden imposed by such cash payments and as a signal of the assessment of the perceived quality and non-monetary costs of public providers, which are available at no cost. Additionally, as Figure 2.10 shows, individuals are often required to pay cash for medicine, especially the poor and vulnerable households that do not have access to medical aid.

Figure 2.10: Households with children: How medicine was acquired

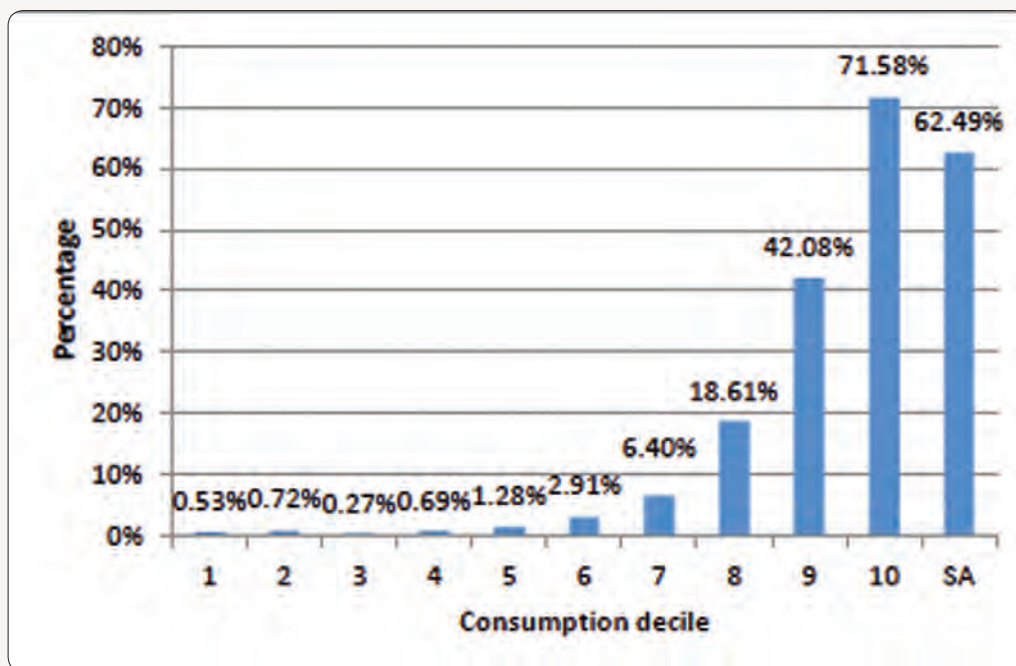


Notes: Own calculations using IES2010.

These costs highlight the importance of access to medical schemes as insurance against expensive but crucial medical treatments and procedures. While financial protection is usually the primary concern with medical aid, medical schemes also provide users more choices in terms of providers and facilities. For this reason, health insurance may be interpreted as a determinant of the quality of health care accessed by households (McLaren, Ardington and Leibbrandt, 2013) and thus serves as an 'indirect measure' of access to quality health care (The World Bank, 2012: 19).

If health insurance is viewed as the gateway to better quality services and greater choice, it is of some concern that only 17% of all South African households with children are covered by medical schemes. Also, medical scheme membership is associated with affluence (Figure 2.11). The top consumption deciles are more likely to have health insurance (72% of 42% of the top and ninth decile of households with children have health insurance), but almost no households in the bottom deciles belong to medical schemes.

Figure 2.11: Medical Scheme Membership by consumption decile for households with children



Notes: Own Calculations using IES2010 (StatsSA, 2012).

Spatial inequality in quality health care access is evident in the data. Analysis of IES2010 suggests that medical aid coverage is concentrated mostly in the urban areas, where roughly one in five households has access to health insurance, while less than 5% of households in rural areas are covered. Similarly, there is also racial inequality in access to health insurance. Fewer than 10% of black households with children are insured by medical aid scheme whereas close to 70% of 'white households' with children are covered (based on own analysis of the IES2010). There is also a divergence in medical aid coverage between male headed and female headed households with children. Of male headed households with children, 18.8% are covered by medical schemes, while in female headed households with children, only 6.2% are covered.

Given these observed differences in nutrition and health care between the poor and the privileged, it is not surprising to see significant socioeconomic differences in the likelihood of diarrhoea amongst children. Analysis of the 2012 GHS indicates that children in poor households are more likely (6.7%) to contract diarrhoea than children in non-

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poor households (4.8%). There may be a number of transmission mechanisms, but there is evidence in support of a role for clean water and adequate sanitation, as the reported prevalence of diarrhoea was lower in households with access to clean water and as prevalence of diarrhoea was lower where households had access to adequate sanitation (5.2%) than in households without (8.6%). Poor sanitation and inadequate access to clean water are also estimated to be the cause of 90% of diarrhoea related deaths. Despite the progress made in providing piped water and sanitation, the incidence of (and deaths resulting from) diarrhoea have increased over much of the last decade⁴⁸, suggesting that much remains to be done to expand the provision and also to ensure the quality and consistency of these services. In addition to saving lives, the benefits of reducing the incidence of diarrhoea include reduced malnutrition and its associated effects. Through the reduced caloric intake, malabsorption and maldigestion, diarrhoea induces malnutrition, which has been associated with stunting of affected children in developing countries (Nel, 2010). An increased provision of safe water and sanitation services is likely to see a reduction in the prevalence of diarrhoea and a reduction in stunting and being underweight among children.

2.5 EDUCATION

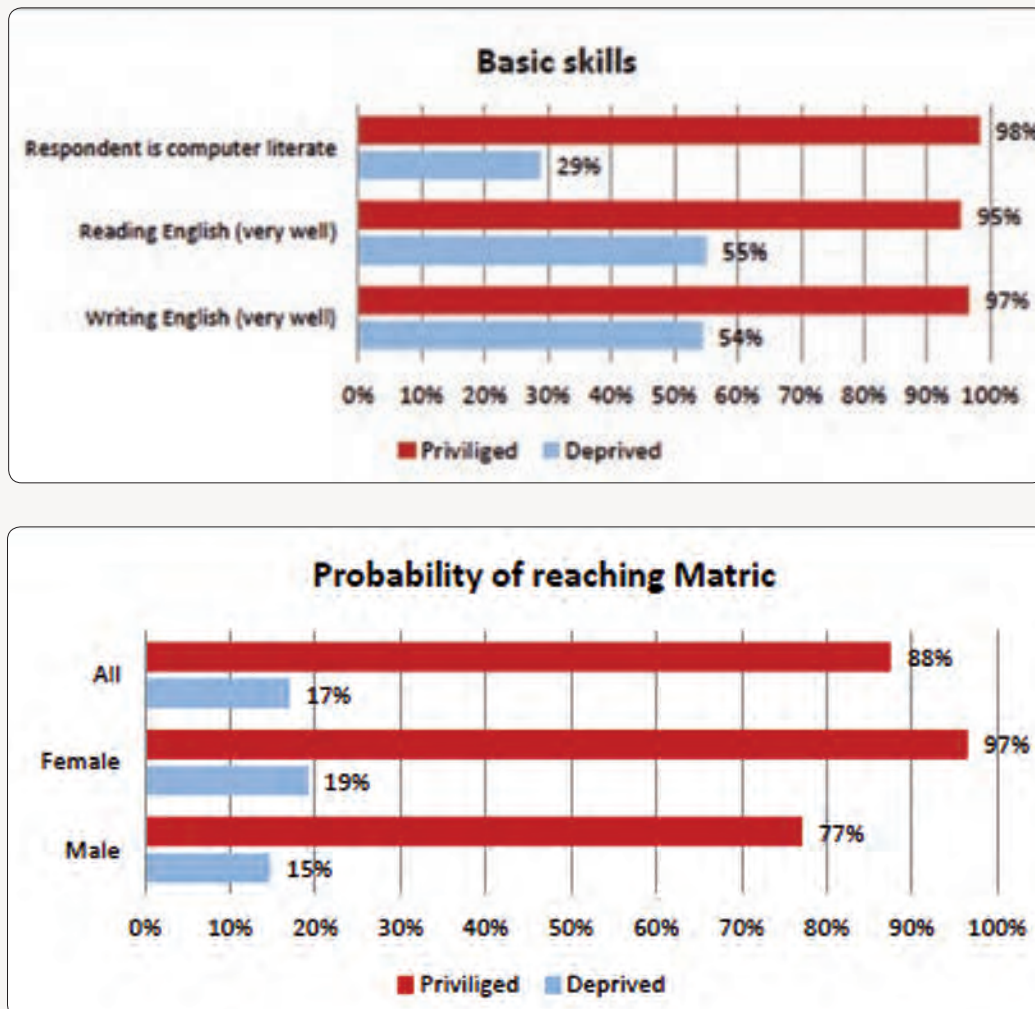
The unequal provision of quality education under apartheid has persisted beyond the transition to democracy and continues to frustrate the labour market prospects for many of the youth. The legacy of weak education stands as a clear poverty trap mechanism. Since the transition, considerable resources have been marshalled towards increasing access to education, which has translated into high enrolment rates (near universal up to age 15). This was not accompanied by improved performance, however, and the quality gap between former white and former black schools remains. Branson and Zuze (2012: 72) report that the South African education system has among the highest variations in education outcomes: schools from the bottom income quintile of the poverty distribution markedly underperform relative to schools in the top quintile. Citing data obtained from the Department of Basic Education, they indicate that in close to half of the schools in the bottom quintile, 95% of learners attained a score of less than 35% on the annual national assessment; only 6% of schools in the top quintile reflected such poor performance (Branson and Zuze, 2012: 70).

This suggests a relatively low likelihood for impoverished children of progressing through secondary school and on to a tertiary education. Analysis of the responses to NIDS survey questions confirms this. In order to compare educational outcomes by socioeconomic status (SES), two groups at different ends of the socioeconomic spectrum were constructed from the NIDS data. Here a 'deprived' household is defined as one belonging to the bottom two income quintiles, having at least one biological parent living in the household but with neither parent having completed primary education. Their 'privileged' counterparts are defined as being in the top income quintile, having both biological parents living in the household with at least one parent having completed high school or achieved a higher education.

⁴⁸ Steyn (2010) reports that diarrhoea induced deaths increased from 6536 to 39239 between 1997 and 2006 – and that it was the third leading cause of death among under 5 children in 2006.

Figure 2.12 illustrates that the likelihood of an emerging adult⁴⁹ reaching matric by the age of 19 or 20 vastly differs between those from a poor socio-economic background and those from more privileged households (17% vs. 88%).

Figure 2.12: Differentials in educational outcomes for emerging adults by socio-economic background

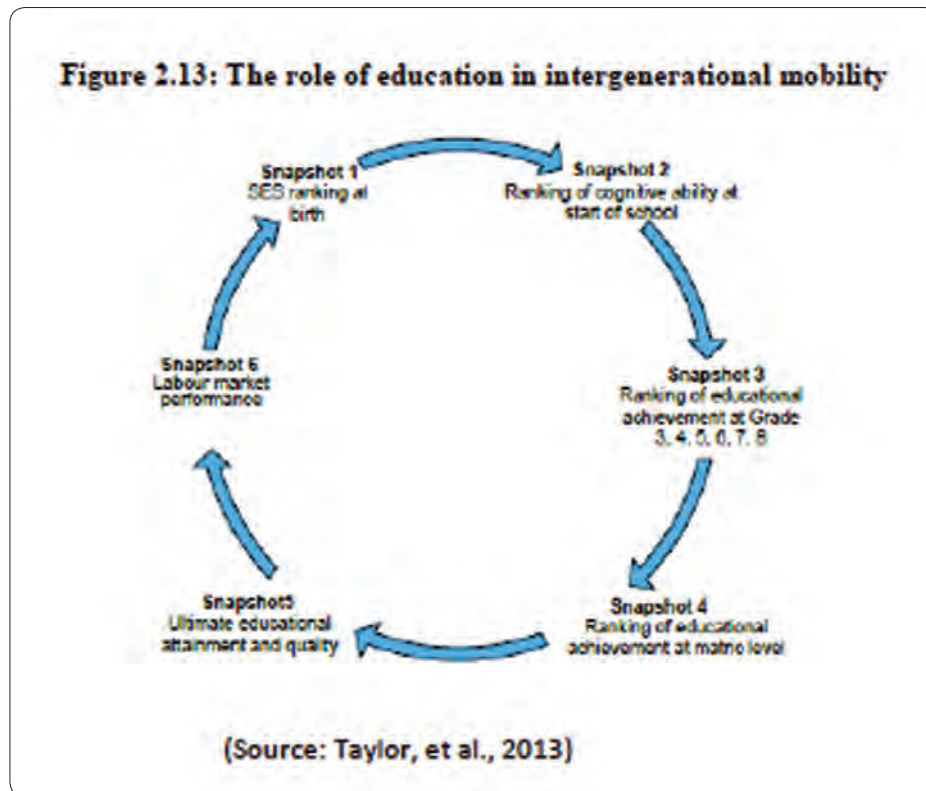


Notes: Own calculations using NIDS 2008

⁴⁹ The term 'emerging adult' was coined by Arnett (2000) to describe individuals ranging from their late teens to their mid-twenties, but for the purposes of this analysis it is used in a more restrictive sense to refer to the age group 19 to 20.

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This glaring disparity reveals the stratified nature of access to quality schooling and implies that an individual's position in the socioeconomic distribution at birth largely determines the quality of education he or she will receive and, subsequently, the individual's competitiveness in the labour market. The vicious cycle is graphically illustrated in Figure 2.13 which shows how a low SES status at birth propagates educational outcomes at each phase of the lifecycle and ultimately results in poor labour market performance.



The current education system is a remnant of historical policies instituted during apartheid. The policy of institutional segregation translated into segregated administrative departments for schools based on race.⁵⁰ Non-white education departments received considerably less funding than their white counterparts, leading to under-resourced schools and an inferior education for non-whites. (Case and Deaton, 1999).

The post-apartheid South African government has gone to great lengths to ensure a more equitable distribution of public funds to eliminate the legacy of unequal spending under apartheid. Education funding has increased with every budget and funding allocations have favoured previously disadvantaged schools. It has been estimated that the poorest 40% of households received 49% of the education spending in 2009 (Van der Berg, 2009), largely due to the fact that poorer households generally contain more children. Although the institutions enforcing the racial divide were abolished and public spending was targeted towards poor schools, the divergent quality between the former white and black parts of the system continues.

⁵⁰ The department for white schools was the House of Assemblies (HOA), for coloured schools it was the House of Representatives (HOR), for Indian schools the House of Delegates (HOD), and black schools were administered by the Department of Education and Training (DET) and each of the homelands had a separate education department.

The discrepancies in school resources can be illustrated by using data from the National School Effectiveness Study (NSES).⁵¹ Table 2.9 compares access to basic services of schools separated by their historical status. Schools within the historically black school system are significantly less likely to have access to electricity, running water and working toilets. Moreover, the classrooms in these schools have on average 34 students per teacher, whereas schools in the former white part of the system accommodate, on average, only 24 students per teacher (largely because of additional teachers being paid through school fees in richer schools). However, the major difference does not lie in the resources available to schools, but in how well resources are used. Taylor (2011) shows how over 75% of the teachers in the former white schools cover the prescribed minimum number of subjects in the curriculum, while for teachers in the former black schools this figure is only 26% on average.

Table 2.8: Differences between former white and black schools, 2008 and 2009

	Former black schools	Former white schools
Number of teachers absent on day of interview	10.89 (9.76)	7.02 (10.82)
Proportion of schools with functional electricity	0.83 (0.33)	1.00 (0.00)
Proportion of schools with functional running water	0.68 (0.40)	0.98 (0.10)
Proportion of schools with functional toilet facilities	0.59 (0.38)	0.89 (0.33)
Proportion of schools with functional box library	0.24 (0.35)	0.80 (0.37)
Proportion of schools with functional landline	0.49 (0.50)	0.96 (0.20)
Pupil-teacher ratio	34.90 (5.47)	24.00 (4.24)
Number of schools	218	19

Notes: Data from the National School Effectiveness Study. Mean value per previous education department from pooled data collected in 2008 and 2009. Standard deviation is in parentheses.

The large differences between schools in the historically black and historically white parts of the school system reinforce rather than bridge the gap in learning outcomes between poor and rich children. Because of the spatial segregation enforced during apartheid, poor students generally live quite a distance from good schools (which are usually situated in wealthier suburbs), making the traveling costs quite substantial. Table 2.10 shows that children attending the historically black schools are on average from poorer households⁵² where they are more likely to be sharing household resources, including attention from caregivers, with more siblings. As expected, these children receive less assistance from their parents when it comes to homework and are also less exposed to English.⁵³

⁵¹ The NSES was undertaken by the Joint Education Trust (JET). The data constitute a panel dataset with three waves collected in 2007, 2008, and 2009 and follows a nationally representative sample of schools in South Africa. Students in 266 schools in eight of the nine provinces of South Africa were tested in literacy and numeracy at the end of the school year in grade 3 (2007), grade 4 (2008) and grade 5 (2009). The median ages of sampled children in the three grades are 9, 10 and 11 years respectively.

⁵² Signalled by the lower score on the socio-economic index as well as the fact that these households are less likely to own books (a measure which has been used in the literature as a proxy for parental wealth and education).

⁵³ English is important here as the tests in the National School Effectiveness Survey were all conducted in English. In addition, however, English proficiency is an important skill for the South African labour market which has been shown to be correlated with labour market outcomes later in life (Casale and Posel, 2011).

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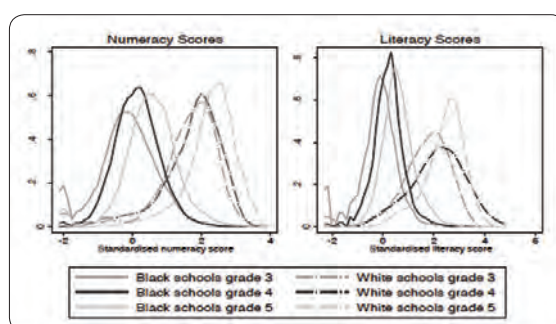
Table 2.9: Differences between children in former black and former white schools, 2008 and 2009

	Children in former white schools	Children in former black schools
Average home socio-economic-status	1.23 (0.59)	-0.24 (0.90)
Proportion living in house with 4+ siblings	0.14 (0.34)	0.45 (0.50)
Proportion speaking English 4+ times per week at home	0.37 (0.44)	0.07 (0.26)
Proportion exposed to English on TV 4+ times per week	0.74 (0.44)	0.36 (0.48)
Proportion receiving help with homework from parents	0.76 (0.43)	0.50 (0.50)
Proportion with >50 books in their home	0.43 (0.50)	0.08 (0.27)
Number of observations	2 222	36 258

Notes: Own calculations using NSES. Average value per previous education department from pooled data collected in 2007, 2008 and 2009 and includes only children who remained in the panel for all three years. Standard deviation is in parenthesis. The socio-economic-status comes from a standardized index including assets and living conditions of children at home.

The potential existence of a poverty trap, for children attending the lowest quality schools and therefore performing at a lower level, is illustrated graphically in Figure 2.14 using NSES data. The distribution of the literacy and numeracy scores of children in the two school systems illustrates how, for both numeracy and literacy, children attending former black schools underperform. In fact, for the most part, children in the historically white part of the school system perform better in the standardised test when they are in grade 3 than a large part of the children in the historically black part of the school system do when they are in grade 5.

Figure 2.14: Student performance in former black and former white schools



Notes: Kernel density curves using data from the National School Effectiveness Study for children in grades 3 (2007), 4 (2008) and 5 (2009). Test scores standardised using item response theory.

Previous studies have also illustrated the strong correlation between SES and achievement. Examining the achievement results of grade 6 students in the SACMEQ test of 2000, Van der Berg (2007) shows that the South African school system has not been able to overcome the persistent socio-economic disadvantages inherited from the apartheid era. Spaul (2013) supports this finding using the 2007 SACMEQ results and demonstrates that there are two vastly different data generating processes in the South African school system, with the poor receiving a vastly inferior standard of educational quality than their wealthier peers.

Taylor & Yu (2009) examines the effect that student SES has on their reading ability using the Progress in International Reading Literacy Study (PIRLS) 2006 test results. They conclude that SES is an important determinant of reading ability and explains much of the overall variance in grade 3 reading achievement. They also find that students attending low SES schools have great difficulty in overcoming their own socio-economic disadvantages. The 2011 PIRLS results show that learners from remote and rural areas achieved a language test score that was more than 1 standard deviation lower than that of their urban peers (Howie et al., 2012). The same trend is visible in students' mathematics test scores.

The inferior outcomes from South Africa's education system are not only gauged by comparing former non-white schools to their privileged counterparts, but manifest starkly in international comparisons as well. Van der Berg et al. (2011) report that in two separate international achievement tests (one involving grade 8 pupils and testing mathematics with the other testing literacy among primary school children), South African learners achieved the lowest scores in both. The 2003 Trends in Mathematics and Science Study (TIMSS) results showed that while former white schools performed at the international mean level, former black schools performed at less than half of that level (Reddy, 2006). These results were echoed in the TIMSS 2011 results (Reddy et al., 2012).

Lam, Ardington and Leibbrandt (2011), citing data from the Cape Area Panel Survey (CAPS)⁵⁴, also find high rates of grade repetition in South African schools – another marker of poor educational outcomes. As expected, the rate of repetition varies by race. The data show that only 27% of black students in the sample advanced three grades over a three year period while for coloured students the number was 34% and for whites 84% (Lam, Ardington and Leibbrandt, 2011: 121). Given that equalisation of funding between the schooling 'sub-systems' has occurred, these differences in educational outcomes (poor performance relative to peer countries as well as failure to advance within the domestic education system) stem from other sources. Lam, Ardington and Leibbrandt (2011) estimate a regression model to determine the relative importance of factors associated with grade advancement. Results estimated by the model reveal a strong association between scores on numeracy and literacy evaluation and household income, implying that among other things, being poor reduces educational attainment of children.

It is important, however, to bear in mind that the impact of socio-economic background can work through a variety of channels. The work of Van der Berg, et al. (2011) suggests that much of it may be working via the association between socioeconomic background and inferior schooling in South Africa. In a cross-country comparison, Van der Berg, et al., (2011: 8) report that children in other African countries who are equally impoverished to South African children do, on average, outperform South African pupils on SACMEQ tests. This is interpreted as evidence that the socioeconomic gradient does not merely capture household or society influences, but that in South Africa a significant share of the observed socioeconomic penalty is related to dysfunctional schools in poor communities (Van der Berg et al., 2011).

⁵⁴ CAPS is a survey of 4752 youths (aged 14-22) based in the greater Cape Town metropolitan area. The first round of interviews took place in 2002.

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Van der Berg et al. (2011) and Branson and Zuze (2012: 71) highlight some of the school level factors associated with socioeconomic background. This list includes teacher's content and pedagogical knowledge, availability of textbooks, teacher attendance, discipline and school management, although available data are unsuitable for measuring these effects with much confidence.

The socioeconomic gradient also works through household factors. It is a well-established finding in the literature that mother's education has a strong association with a child's educational outcomes (Lam, Ardington and Leibbrandt, 2011; Burns and Keswell, 2012). The importance of mothers' influence on children's education is also evidenced by the observation that maternal orphans obtain significantly lower levels of education relative to paternal orphans and children with living mothers in general (Case and Ardington, 2006)⁵⁵. Using the Africa Centre for Health and Population Studies panel data and a regression model that controls for income levels, number of children in the household and other factors that may affect investment in education, Case and Ardington (2006) are able to assign a causal role for mother's death in lowering school enrolment and reducing educational attainment.

Figure 2.15 shows the differences in the probability that a child reaches grade 7 on time for different levels of mother's education and household income⁵⁶. The substantial differences reflected in the figure indicates that mother's education has an impact on grade progression over and above the indirect effect, working via household income. Children who have mothers with more than 7 years of education have a substantially higher chance of progressing through primary school without any grade repetition, for given income levels. Figure 2.16 shows that mother's education also raises the probability of a child entering tertiary education.

Still another factor associated with poverty and poor educational outcomes is teen pregnancy⁵⁷. Ardington, Menendez and Mutevedzi (2011) find that early childbirth is associated with lower educational attainment for the mother. An important aspect of their study is the tentative finding that teen pregnancy is a causal driver of lower accumulation of human capital. By analysing the characteristics of girls who fell pregnant over time (before and after pregnancy), and comparing these with girls who did not fall pregnant they are able to establish an explanatory link between teen pregnancy and poorer educational outcomes. This result is important as it softens the argument that teen pregnancy simply signals an inherently poor capacity for education. It implies that reducing the rate of pregnancy among teenaged girls will improve educational outcomes and, importantly, that childbearing teens should not be treated as less capable but should, perhaps, rather be encouraged to continue their education.

⁵⁵ Note that 'maternal orphan' refers to a child who has lost her mother and 'paternal orphan', a child whose father has died while a double orphan refers to a child having lost both parents. Thus, the term 'orphan' in this report means someone who has lost either their mother, or their father, or both parents.

⁵⁶ These outputs were obtained by employing a logit regression model which allows for the estimation of the effect that a mother's education has on her child's educational attainment.

⁵⁷ Branson, Ardington and Leibbrandt (2013) estimate that 23% of mothers in 2008 had their first child during their teen years.

Figure 2.15: Mother's education, income quintile and reaching Grade 7 on time

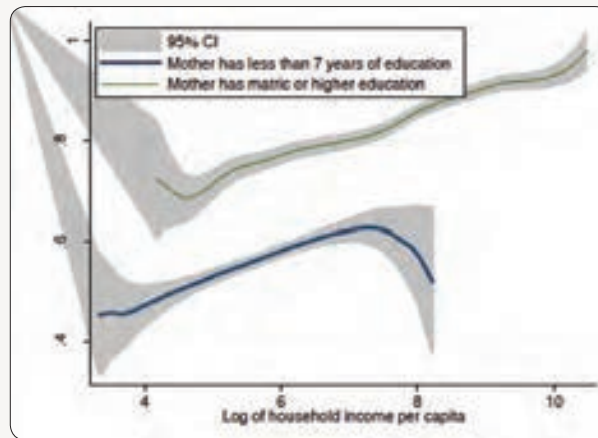
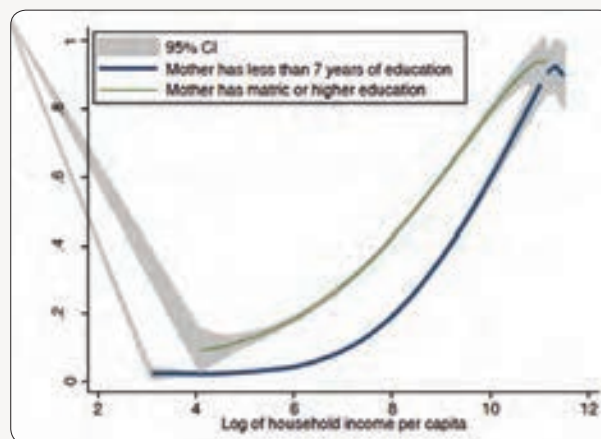


Figure 2.16: Mother's education, income quintile and reaching tertiary education



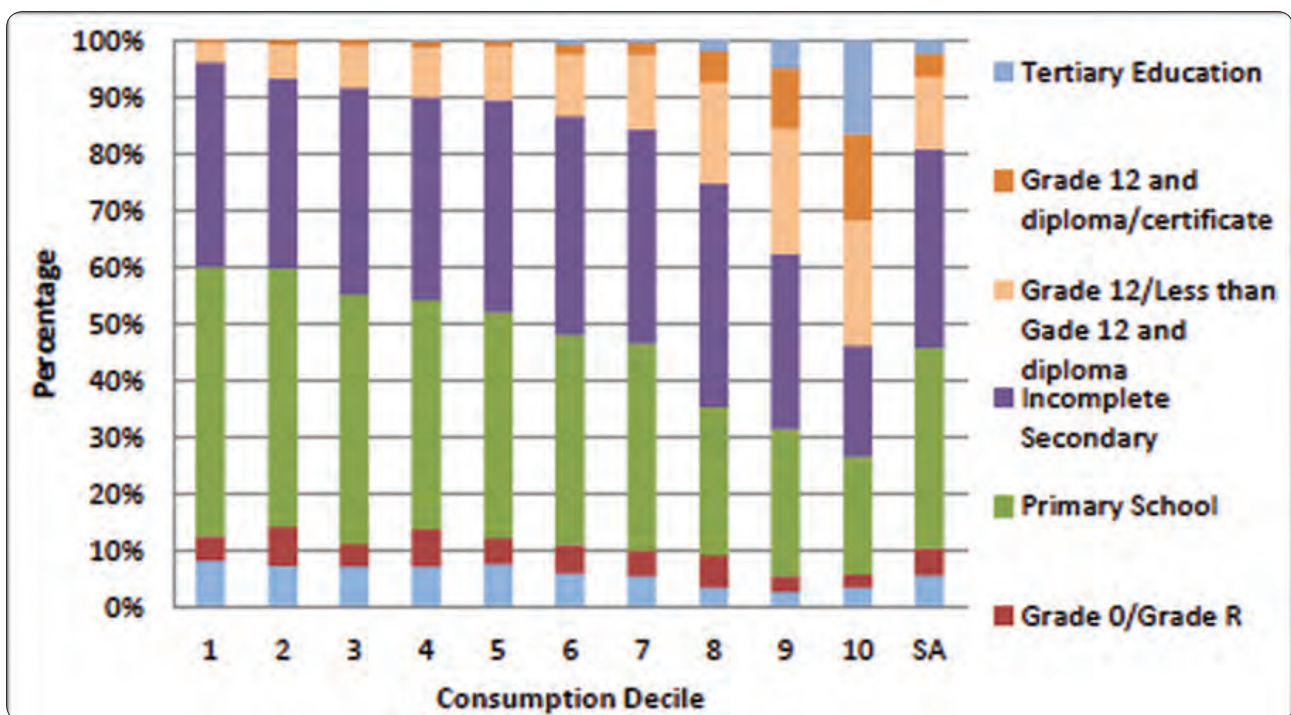
Notes: Own calculations using NIDS 2008

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They also find that younger teen mothers (who they define as girls who gave birth to their first child before the age of 17) display a larger education deficit relative to older teen mothers (girls older than 16 years) (Ardington, Menendez and Mutevedzi, 2011: 7). Given the large earnings cleavage between individuals obtaining a matric and those not completing high school⁵⁸, teenage fertility may reduce the life chances of girls and serve as an early disadvantage for their children. Indeed, Branson, Ardington and Leibbrandt (2013) find that, for the period spanning 1980-2008, children born to teenage mothers attain significantly fewer years of education than children born to older mothers.

Figure 2.17 shows that household heads in the lower consumption deciles more often have primary and secondary education only, but in higher consumption deciles the proportion of household heads with further education or tertiary education increases. Figure 2.18 splits a range of educational levels (attained by the household head) by the household's poverty status. Households in which the head has attained tertiary level education are almost exclusively non-poor. More than 80% of households in which the household head attained matric are non-poor while the majority of poor households have a household head that did not complete matric.

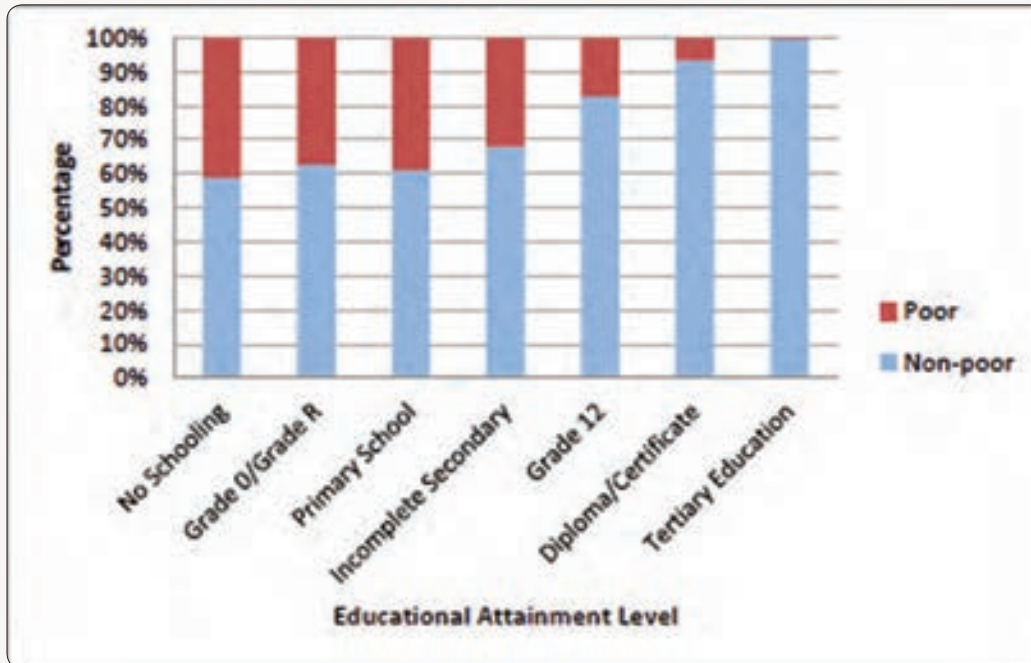
Figure 2.17: Educational attainment levels of household head for households with children by consumption decile



Notes: Own calculations using IES2010 (StatsSA, 2012).

⁵⁸ Branson et al. (2013) show that, despite the falling returns, having a matric increases the probability of employment and affords its holders a wage premium.

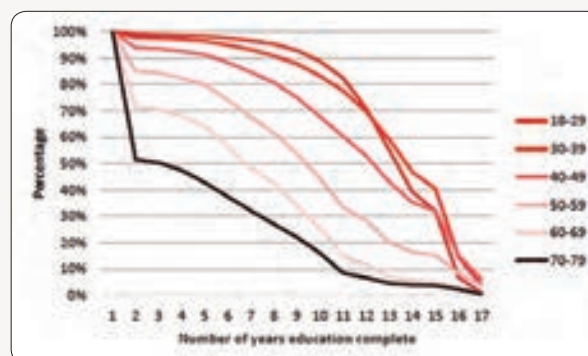
Figure 2.18: Broad educational attainment levels of household heads and the poverty status of the households in households with children



Notes: Own calculations using IES2010 (StatsSA, 2012).

Figure 2.19 shows that the younger the adults in the household, the higher the likelihood of higher education. Woolard & Klasen (2005: 884) similarly find that the initial education level of the household, in this case either the education level of the household head or the adults in the households, influences upward mobility significantly.

Figure 2.19: Adult education attainment profiles in households with children by age cohorts



Notes: Own calculations using IES2010 (StatsSA, 2012).

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Controlling for several factors that may influence education levels, Burns and Keswell (2012) find a strong association between the educational attainment of parents and their offspring across three generations. The finding that schooling outcomes persist across generations implies that a negative shock to educational attainment in one generation may initiate a cascade of poor human capital development over successive generations (Burns and Keswell, 2012).

Low educational attainment and poor quality education limit a young person's labour market prospects and the associations outlined above can therefore function as a poverty trap. Branson et al. (2013) show that returns to matric level education have been declining, a result they associate with the low quality of secondary education.

2.6 SOCIAL AND FAMILY EFFECTS

Household and community dynamics play an important role in determining the welfare status of children. The composition of households determines the early environment as well as the nature of opportunities a child will be exposed to, and will impact on the financial and non-financial investment in children. Woolard and Klasen (2004: 25) find that larger households are less likely to be socially mobile than smaller households, possibly because larger households will have more children. Hence, the monetary and non-monetary household resources available for investment in children have to be distributed amongst more children, resulting in lower per capita allocations.⁵⁹ Logically, at the same household income level, a household with more children will have a lower per capita income, which means that the opportunity cost of educational investment will be higher.

Household fragmentation, which occurs either through orphanhood or absent parents, impacts negatively on child outcomes as well. A multivariate analysis of the KIDS panel data set also reveals that female headed households are more likely to observe stagnant incomes than male headed households (Woolard and Klasen, 2004). The father's presence is thus important for ensuring adequate resources for investment in children's education and other developmental activities. Ardington (2007: 15), employing the 2005 IES, also finds that children with absent fathers live in households that are less likely to have access to electricity and sanitation and tend to have lower expenditure per capita. Further analysis shows that children who are orphaned (losing either one or both parents) or do not co-reside with their mother⁶⁰ are more likely to attain lower education levels than other children (Ardington, 2007: 22).

The mechanisms propagating these impacts include both psychological trauma in the case of orphanhood (Cluver, Gardner and Operario, 2007), which hinders cognitive and emotional development, as well as lower investment in child developmental activities and loss of parental involvement (Ardington, 2007: 4-5). These findings support the contention that household fragmentation has deleterious effects on child developmental outcomes, which is relevant for South Africa. The South African Child Gauge 2010 (Hall et al., 2012: 83) reports (using data from the 2012 General Households Survey or GHS) that in 2010 only one third of all the country's children lived with both biological parents and that 24% lived in households where both biological parents were absent. The report furthermore indicates that of the children from households in the poorest quintile, only 19% lived with both parents whereas for children in the top quintile of households the proportion was 73% (Hall et al., 2012: 83). Differing racial and geographic patterns are evident as well. Twenty-eight percent of black Africans live with both biological parents, compared to 81% of white children, while the country's two richest provinces (Gauteng and the Western Cape) also show the highest rates of children living with both

⁵⁹ The same authors also argue that poor households containing a transfer recipient may be compelled to support unemployed adults, leading to increased households size among the poor and perpetuating a low welfare state.

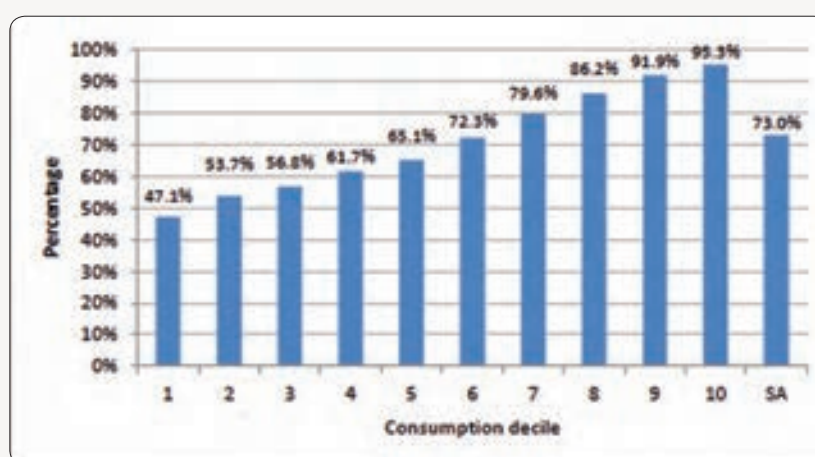
⁶⁰ The effect of an absent father was found to be insignificant when other factors, such as income, were controlled for (Ardington, 2007).

parents – more than 50% of children in these provinces live with both parents, while the figure is only 22% for the Eastern Cape and the national average is 33%.

These figures are suggestive of, among other things, the effect of migrant labour on household composition. The migrant labour ‘system’ emerged as a result of restrictions imposed on blacks in settling in urban centres. This created a spatial mismatch between job seekers and employment opportunities and meant that aspirant workers were forced to engage in circular or temporary migration. Despite the restrictions on mobility and settlement being lifted before the end of apartheid, an increase in circular (or temporary) migration was reported for the period 1993–2002, before it declined after 2005 (Posel, 2010). This persistence of the migrant ‘system’ exemplifies the difficulty of changing structurally entrenched societal patterns and serves as an example of the persistence of social exclusion.

Social exclusion is a concept aimed at describing lack of access to various institutions, activities or resources that are broadly considered ‘normal’ in a particular society (Silver, 2007)⁶¹. It thus aims to capture deprivation holistically, by considering economic wellbeing – the ability to find work, for instance – and social relationships as important aspects of an enriched life. The concept is related to poverty traps in that social exclusion typically has structural determinants that are difficult for affected individuals and groups to overcome. South Africa, under apartheid, actively excluded a majority of its citizens from full participation in economic life by formally restricting access to public services and private enterprise, limiting freedom of spatial mobility, and imposing restrictions on labour market access based on race. While the democratically elected government has made attempts to ensure equal access to opportunity for all, the inertia of exclusion has meant that historical patterns of poverty and privilege remain, and may still bear influence on the so-called ‘born free’ generation. The Gini-coefficient has remained high⁶². The World Bank’s Human Opportunity Index (HOI) – constructed to measure the coverage of a given asset and service given the circumstances of different groups in a population (World Bank, 2012: 18) – also indicates unequal access among South African households to certain services and life outcomes. These include completing primary school on time, access to safe drinking water on site, access to better sanitation, exposure to ECD services, and health insurance (World Bank, 2012).

Figure 2.20: Proportion of households with children having formal housing by consumption decile



Notes: Own calculations using IES2010 (StatsSA, 2012).

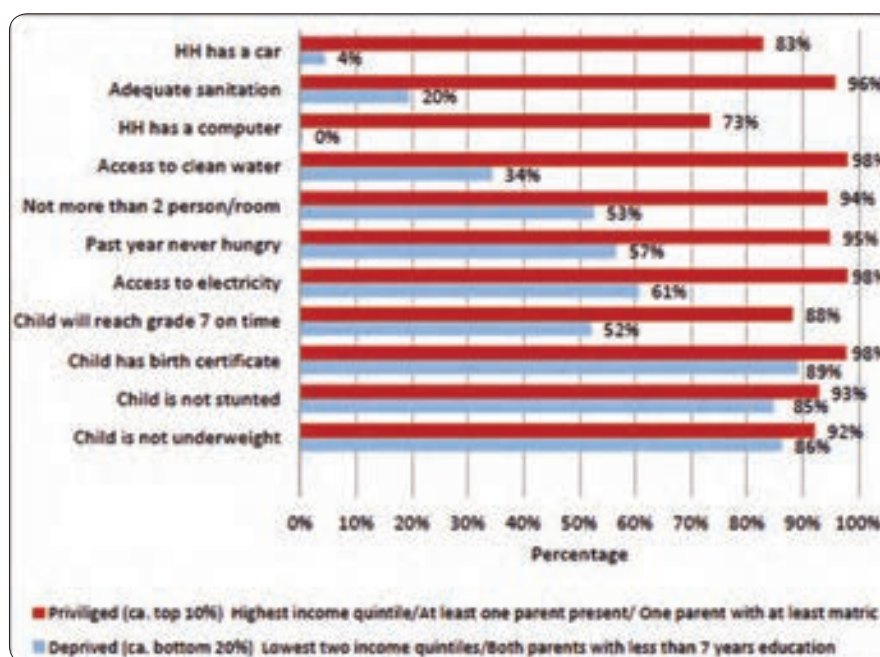
⁶¹ Researchers who attempt to operationalize the concept include indicators such as ownership of durable goods, housing, physical and psychological health, social relations and participation and common social, political and cultural activities (Silver, 2007: 5).

⁶² The Gini-coefficient is a measure of inequality (typically of income, expenditure or consumption) within a given country. It ranges from 0 to 1 with 0 implying perfect equality and numbers closer to 1 indicating high levels of inequality. The World Bank (World Bank, 2012) estimates that South Africa’s 2008 income Gini-coefficient was approximately 0.7, which is among the highest of any country in the world.

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Sources of social exclusion among poor children in South Africa include a lack of access to quality health services, poor quality education (Moses, 2008), the absence of household and neighbourhood amenities – including basic services such as piped water and sanitation, the lack of opportunity to engage in social activities, a lack of access to communication and media resources, as well as fear of personal crime and violence (Bradshaw and Holmes, 2010). Inadequate access to basic services, amenities and activities reduces opportunities for human capital and socio-emotional development and may also reduce the aspirations of children and induce a sense of hopelessness. In South Africa, the degree of access to such assets and services varies sharply by socioeconomic background. This is illustrated by Figure 2.21, which considers the likelihood that children aged between 10 and 14 from opposing ends of the spectrum in terms of home background would live in certain circumstances and would reach various benchmarks based on their socioeconomic background. A ‘deprived background’ is here again defined as being in the bottom two income quintiles, having at least one biological parent living in the household but with neither parent having completed primary education. Their counterparts from ‘privileged backgrounds’ belong to the top income quintile, live with both biological in the household and at least one parent has completed high school or achieved a higher education.

Figure 2.21: Estimated probability of reaching various benchmarks for children from different socio-economic backgrounds (determined using distribution patterns as at 2008)

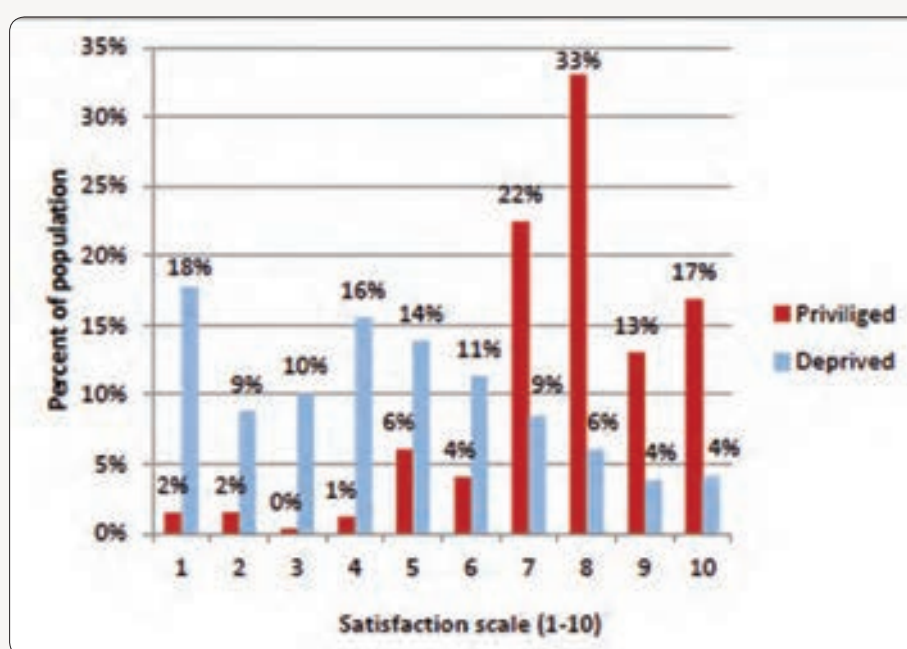


Notes: Own calculations using NIDS 2008

The figure shows that living in a disadvantaged household reduces the chances of reaching Grade 7 on time by about 36 percentage points (52% vs. 88%). The differences in outcomes are more pronounced in terms of the chances of a child from a poor socio-economic background living in a household with access to adequate sanitation

(20% vs. 96%) and clean water (34% vs. 98%).⁶³ The probability of the household possessing a car (4% vs. 83%) or a computer (0.4% vs. 73%) is close to zero for children from a deprived background. Poor children are considerably less likely to live in households with access to electricity and where no overcrowding occurs. On the other hand, there seem to be only small differences in the likelihood of the child being underweight (6 percentage point difference) or being stunted (8 percentage point difference) between children from poor and more affluent households. These figures highlight the unequal life chances faced by children born into a life of privilege and those born into poverty. It is noteworthy that the data show that a feeling of dissatisfaction with life appears to emerge at a relatively young age amongst poor children. This is reflected in Figure 2.22 below, which shows life satisfaction of emerging adults from opposite sides of the socioeconomic spectrum.

Figure 2.22: Life satisfaction of emerging adults from different home backgrounds



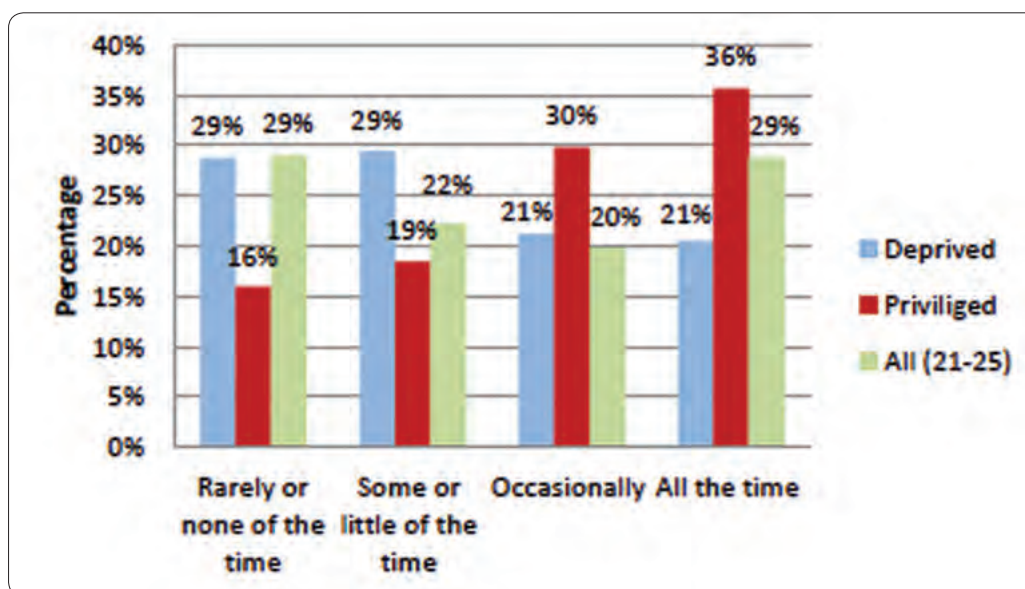
Notes: Own calculations using NIDS 2008.

Less well-off emerging adults are more inclined to report dissatisfaction with their lives. The patterns in the figure are quite stark, with the majority of more privileged youth generally being satisfied while the majority of youth from deprived backgrounds are dissatisfied. Particularly striking is the fact that the largest proportion of respondents from deprived backgrounds selected the least satisfied option in answer to this question. Figure 2.23 provides evidence that at the age of 21 there are already large gaps in the outlook of those who grew up in poor households and those who were raised in relative affluence. The figure shows young people's perspective on the future. Respondents from privileged households were far more likely to be 'hopeful about the future' all of the time, while respondents from poor households more often reported that they rarely felt 'hopeful about the future'.

⁶³ Clean sanitation is defined as having either a flush or a chemical toilet. Access to clean water is defined as having piped water in the dwelling, on site or in the yard. These basic household amenities are important factors in determining susceptibility to serious illnesses like cholera.

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Figure 2.23: Respondents' level of optimism for the future (age 21-25)



Notes: Own calculations using NIDS 2008.

Feeling unsafe is another source of social exclusion. Inadequate protection services mean that children may be exposed to or become victims of violent or sexual crime. UNICEF, citing data from the South African Police Service, documents that more than 50 000 crimes against children occurred over a one year period between 2010 and 2011 and that of these, 28 128 were of a sexual nature. In an ethnographic study conducted in the Ocean View community in the Western Cape, Moses (2006) reports children's descriptions of neighbourhood violence, including shootings and stabbings. Communities in which children are routinely exposed to violence are not uncommon in South Africa. Prinsloo et al. (2012) report that in 2000 the child homicide rate in South Africa was double the world average. Burton concludes that "in the period between September 2004 and September 2005, 42% of South African children and youth between the ages of 12 and 22 years were victims of crime or violence" (Burton, 2006: 1). Results from a survey undertaken by the same author suggest that 17% of children between age 11 and 18 were victims of assault during that year, and that 66% of young people interviewed reported having witnessed intentional violent acts in their local communities (Burton, 2006: 4). Shields, Nadasen and Pierce (2008) studied the effects of exposure to community violence and found it to be associated with high levels of psychological distress among children. A notable finding was that merely hearing about violence that occurs within the local community affected children in the study similarly to those who had witnessed it. This outcome, together with the increased potential for children who are exposed to violence to later engage in anti-social behaviour (Burton, 2006), suggests that the neighbourhood can stifle child developmental potential and lead to welfare loss⁶⁴. Moses (2006: 121) found that children in Ocean View tended to stay very close to home for fear of their personal safety. One child is quoted as stating that, in order to remain safe, it is best to "just stay in your house 24 hours (per day)" (Moses, 2006: 121). Community violence and crime are often associated with the prevalence of alcohol abuse in a given neighbourhood (Schneider et al., 2007).

⁶⁴ Lam et al. (2011), in their regression model, find the neighbourhood unemployment rate to be negatively related to children's education, although the estimated effect is not statistically significant.

The negative effects of alcohol abuse are, however, not limited to increased risk of exposure to violence and abuse but, tragically, often begin in utero. Foetal alcohol syndrome (FAS)⁶⁵ is highly prevalent in South Africa, particularly in the Western Cape, where farm workers were historically compensated, in part, with alcohol for their labour (May et al., 2000). Known as the 'dop system', this practise of recompense set a norm of excessive alcohol consumption as a way of life among farm workers. Though the practise is now prohibited, it has helped to establish norms around excessive alcohol consumption in Western Cape farming communities. May et al. (2000) report that the prevalence of foetal alcohol syndrome among American Indians, a population considered to be at high risk, is 10 per 1000 persons while in the Western Cape, a screening of close to 1000 first grade learners yielded an estimate of 42 persons per 1000 – a measure which they report as “the highest rate of foetal alcohol syndrome ever documented in a stable community” (May et al., 2000: 1911). Again, a strong racial and geographic divide was evident when considering who was most likely to be affected. All of the children they found to be affected were either black or coloured and 61% of cases were from schools in rural areas. A policy brief resulting from the 2008 FASD Prevention Symposium reported that FAS prevalence in 'high risk' areas of the Western Cape and Northern Cape could be up to 119 persons per 1000. Moreover, the brief indicates that an increase in the prevalence of FAS had been found in areas where multiple measures were taken over time (MRC, 2008). More recently, it was still claimed that South Africa had the highest measured rate FAS in the world with a prevalence in excess of 40 persons per 1000 in parts of the Western and Northern Cape (Marais et al., 2011).

Viljoen et al. (2002) conducted a study to determine the risk factors for mothers likely to give birth to children affected by FAS. Controlling for socioeconomic factors and age of first pregnancy, they found that mothers of affected children started consuming alcohol at an earlier age, on average, than other women. Mothers of affected children were more inclined to have lower educational attainment and were more likely to have family members who engage in excessive alcohol consumption. Children affected by FAS (and FASD more generally) begin their lives at a severe disadvantage. Adverse effects of the disorder are physical, cognitive and behavioural in nature and the condition is usually associated with a deficient learning capacity. All of these effects are risk factors for poorer adult life outcomes and, thus, the condition condemns the afflicted to a low welfare existence. Reducing the incidence of FAS should thus be an important policy target in high-risk communities – perhaps at the local government level.

Other examples of deleterious parental behaviour are also exhibited in South Africa's poorer communities. These include, as in the case of FASD, acts of commission as well as acts of omission. The incidence of sexual and violent assault against children in South Africa is widely reported as comparatively high (Makoa, Roberts and Ward, 2012). It was mentioned above that 28 128 cases of sexual offences against children in South Africa were reported in a single year. Of these children, 906 were murdered and 11 018 suffered an assault with intent to do grievous bodily harm. Victims in almost 30% of these incidents were children under the age of 10 years. Many more were subjected to other kinds of maltreatment (including neglect), which harms socio-emotional and cognitive development. As recognised by the MRC-UNISA Safety & Peace Promotion Research Unit, the prevention of and protection from child maltreatment are primarily the responsibility of parents (Ismail, Taliep and Suffla, 2012). The high prevalence of maltreatment in South Africa – which is more widespread in poorer communities (Department of Social Development, Department of Women, Children and People with Disabilities and UNICEF, 2012) – may in some cases be symptomatic of parents neglecting their responsibility to ensure a safe and enriching environment that accommodates the development of their children's social and cognitive skills. Although conclusive data to support this conjecture is not forthcoming, suggestive evidence for it manifests in several other ways. Most crudely, the necessity for instituting child protection

⁶⁵ Foetal alcohol syndrome is a condition incurred prenatally by children due to high levels of alcohol consumption by their mothers. The disease is associated with stunting, low birth weight, and other physical as well as mental impairments.

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laws and services (which largely emphasise protection as opposed to prevention) aimed at enforcing accountability (Makoae, Roberts and Ward, 2012). A survey of various public administrators and academics conducted by the HSRC also reflected a generally negative view of the South African public's attitude to child maltreatment (Makoae, Roberts and Ward, 2012). In answer to the question, "How seriously does the general public perceive child maltreatment?", only 41.5% of respondents answered that it is generally viewed as serious⁶⁶ and 51.2% believed that the general public perceived child maltreatment as 'usually not preventable'.

The neglect of child rights and its importance for advancing later life outcomes among poor South African parents arises for various reasons. A report undertaken in collaboration with UNICEF (2012) highlights poverty itself as a causal mechanism for inducing adverse home environments for children. Low and precarious incomes place emotional stress on families, straining relations among household members. Where these frustrations find violent (or emotionally abusive) expression, children, presenting 'soft' targets, are commonly at the receiving end of the abuse. Child abuse and neglect may be further exacerbated by the social norms adhered to in a given society. Gender imbalances in household power relations may result in men perceiving it as their unimpeachable 'right' to punish other household members or exercise other forms of control over them. Sometimes, in poor communities, violent expression is perceived as a desirable masculine trait and engenders respect among peers. Furthermore, if community members share the view that occurrences within a household are the 'family's business' and outside intervention is to be discouraged, harmful and negligent activity within households may continue unchallenged. Typically, incidents of child abuse and neglect perceived as less severe – such as corporal punishment, or leaving a child unattended – are less likely to elicit intercession from other household or community members. The UNICEF (2012) report identifies all these as risk factors for child maltreatment in South Africa.

Another damaging form of shirking responsibility is the failure of parents to support their children financially through the payment of court ordered maintenance. The 2010 GHS survey indicates that 39% of children in South Africa lived in households without fathers. Only 4% of children reported their father to be either deceased or of unknown mortality status, and only 32% were living with both parents. As reported earlier, the proportion for single female headed households is likely to be higher than the national figure when considering poor households only. This implies that a large contingent of South African children depend on maintenance payments for financial support, a right they are often denied. Wamhoff and Burman (2008: 147) declare the private maintenance system to be failing as a parental responsibility enforcement mechanism. Madhavan et al. (2014) highlight administrative dysfunction in the maintenance system as one of the reasons for poor adherence by fathers to court rulings. Added to inadequate institutional capacity, they also cite high unemployment levels among poor South African men and payment resistance by fathers as a significant determiner of non-support. A study aimed at understanding the views of users of South Africa's maintenance system revealed that men had a generally negative perception towards maintenance payment (Khunou, 2012). The 17 men who were interviewed for the study generally felt that the enforcement of maintenance payments impacted negatively on their relationship with their children, with some viewing the court order as a personal attack by their former spouse/partner. They also expressed ambivalence about the actual use of the money by the mothers which in turn resulted in resentment at having to provide maintenance without any knowledge about its use. One respondent expressed resentment towards his children for being a financial drain and viewed them as a source of 'suffering'. Though these are anecdotal, the abdication of parental responsibility by non-co-resident fathers is not uncommon. Khunou (2012) suggests that most of the men interviewed for the study were in arrears (an average of two years) with their maintenance payments. He also reports that in 47.3% of

⁶⁶ The two alternative responses were 'not serious/don't know' (26.8%) and 'neither serious nor not serious' (31.7%).

maintenance cases in 2002, fathers “questioned paternity as part of the maintenance case proceedings”. Using data from the Birth to Twenty (Bt20) study⁶⁷, Madhavan et al. (2014) found that 23.6% of the children in the sample of 1 557 received no financial support from their fathers during their first five years. While the findings mentioned here must not be interpreted unequivocally, parental responsibility is an area where significant improvement may be possible, though this question needs to be explored more rigorously.

2.7 GEOGRAPHICAL DIMENSIONS

The spatial dimension of poverty is plainly visible at regional, provincial, municipal and neighbourhood scales. Section 2.2 showed, using the money-metric poverty measure, the significant differences in poverty incidence among provinces. Section 2.3 affirmed these large differences using a multidimensional measure for poverty. This section uses more comprehensive geographic data sources to examine geographic poverty trends over time and complements the earlier analysis by considering, in addition to provincial trends, dynamics at the municipal level, with some evidence on post 1994 migration patterns. Unfortunately the detailed 2011 Census data were not yet available, but the 2001 Census and the 2007 Community Survey allow an analysis of broad migration patterns in the intervening period that are unlikely to have changed much since.

Table 2.10 below shows the poverty headcount for adults and children by South African province in 2001 and 2007, ordered from lowest to highest poverty headcount in 2001. The table confirms that children tend to live in poorer households.

Table 2.10: Poverty headcount by province, 2001 and 2007

	All		Adults		Children	
	2001	2007	2001	2007	2001	2007
Western Cape	32.2%	18.5%	27.7%	15.4%	41.3%	25.3%
Gauteng	36.1%	24.0%	31.4%	20.0%	47.1%	33.4%
Northern Cape	56.5%	32.0%	50.6%	26.6%	66.5%	41.8%
North West	64.2%	42.2%	57.4%	35.1%	74.8%	54.2%
Free State	64.9%	39.7%	59.1%	33.7%	74.6%	50.7%
KwaZulu-Natal	66.3%	47.0%	58.3%	39.5%	77.6%	58.2%
Mpumalanga	67.1%	43.8%	60.0%	36.9%	76.7%	54.3%
Eastern Cape	74.1%	52.2%	66.6%	44.3%	83.3%	62.6%
Limpopo	77.6%	55.9%	71.6%	48.8%	83.8%	64.5%

Notes: Own calculations using Census 2001 and Community Survey 2007.

It is evident from Table 2.10 that although economic deprivation has been reduced substantially between 2001 and 2007, child poverty is still worst in those provinces which contain the former homelands (only the Western Cape and Gauteng did not ‘inherit’ former homeland territory).

⁶⁷ Bt20 is a longitudinal study (comprising 16 waves of data) that follows 3273 Johannesburg born individuals which began in 1990. Given the sample, their findings cannot be generalised. It should also be noted that they restricted their study to black individuals.

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Table 2.11 shows where the poorest 100 municipalities were located in South Africa in 2001 as well as each province's share of child poverty. The relative shares of child poverty by province in 2007 is much the same as they were in 2001, a testament to how intractable the distribution of child poverty was over the period.

Table 2.11: Provincial shares of child poverty, 2001 and 2007

Province	Number of municipalities in poorest 100, 2001	% of poorest 100 municipalities in province, 2001 ⁶⁸	Share of child poverty burden, 2001	Share of child poverty burden 2007
KwaZulu-Natal	37	69.81%	23.675	25.05%
Eastern Cape	24	60.00%	19.45%	19.46%
Limpopo	13	56.52%	17.45%	16.92%
Gauteng	0	0.00%	9.90%	11.30%
North West	10	47.62%	8.65%	7.99%
Mpumalanga	5	25.00%	8.14%	8.12%
Free State	6	30.00%	6.21%	5.35%
Western Cape	0	0.00%	4.93%	4.37%
Northern Cape	1	3.45%	1.62%	1.44%

Notes: Own calculations using Census 2001 and Community Survey 2007.

More detailed representations of the child poverty headcount in 2001 and 2007 at the municipal level (using 2001 borders) are shown in Figure 2.24 and 2.25. These snapshots show clearly how child poverty in South Africa is more prevalent in the former homeland regions. It is encouraging to note how child poverty has decreased in the six years between the two surveys, particularly in those municipalities where poverty headcounts were highest in 2001, evidenced by the colour changes between the two illustrations. In 2001, 221 municipalities had child poverty rates of more than 50%. By 2007 that number had decreased to 145 municipalities, an indication of how successful the fight against money-metric poverty has been in South Africa in that period, assisted by stronger economic growth and a rapid expansion of Child Support Grants.

The different opportunities available in different areas have resulted in distinct migration patterns. Figure 2.26 maps net immigration numbers by municipality between 1996 and 2001. Yellow to green areas indicate municipalities that are net recipients of migrants (the number of migrants received exceeds the number of migrants sent), while orange to red areas show municipalities that are net senders of migrants (numbers of migrants sent exceed numbers received). The exodus of human capital from municipalities close to and overlapping the former homelands to more affluent municipalities in the same or different provinces is immediately obvious. Migration favours the younger and more educated, leaving only the very young and old behind. Sending regions lose the most productive segment of their labour force to more affluent receiving regions, with deleterious consequences for those sending communities.

⁶⁸ South Africa's 4 cross-border municipalities are also amongst the poorest 100 municipalities in South Africa, but for ease of exposition they were not included in the table.

Figure 2.24: Child poverty headcount at municipal level, 2001

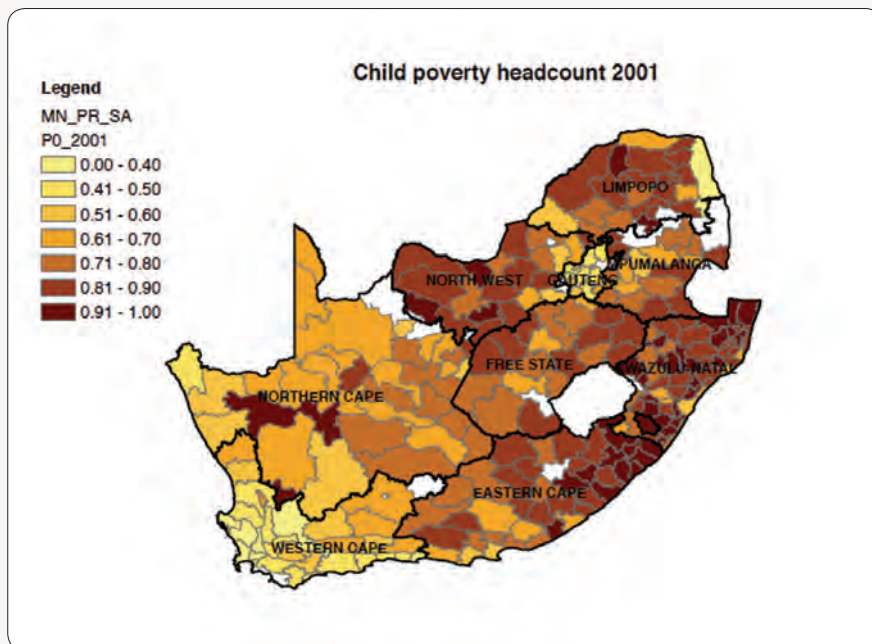


Figure 2.25: Child poverty headcount at municipal level, 2007

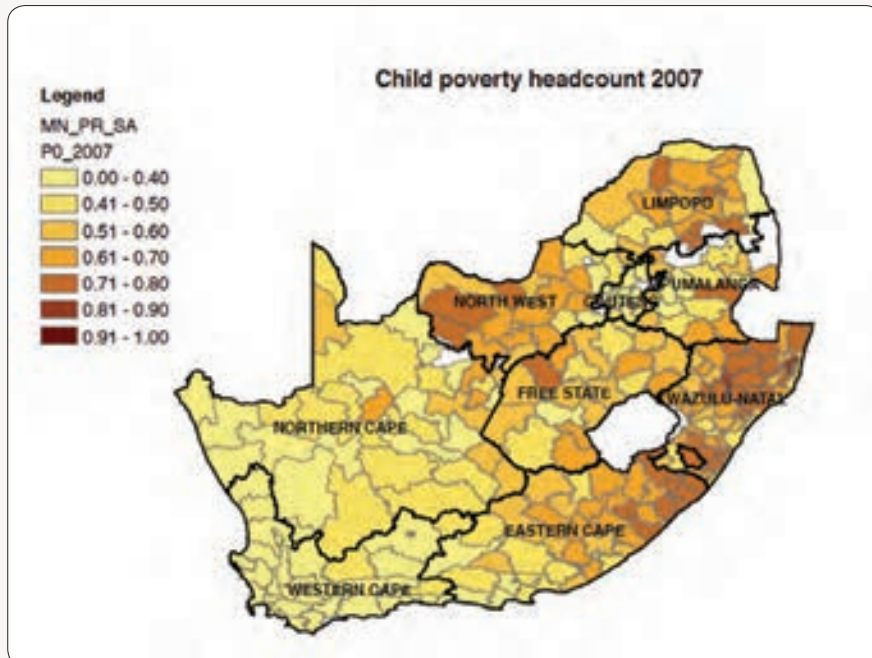
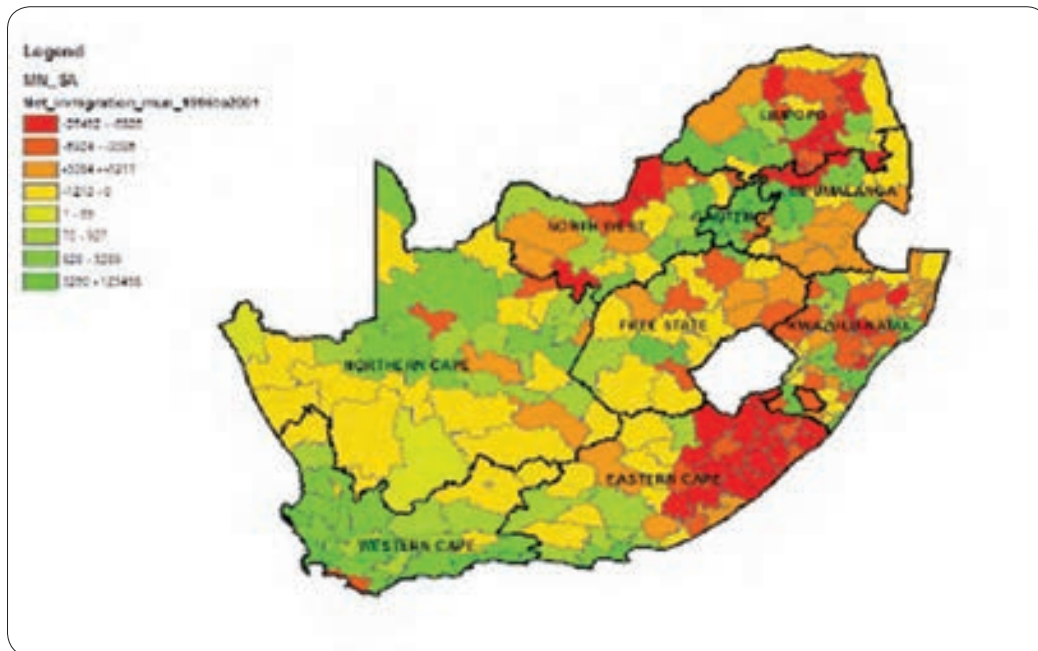


Figure 2.26: Net immigration by municipality, 1996 to 2001



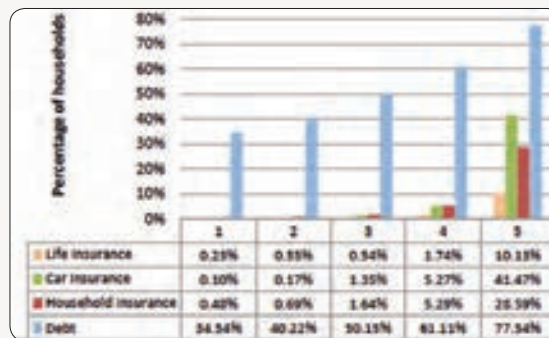
Notes: Own calculations using Census 2001.

2.8 WEALTH AND ASSETS

Twenty years after the end of apartheid there are still large differences in the asset holdings and wealth of South African households. Poor and black households tend to have low initial asset levels and poor access to credit – a factor which theory and international literature suggest can function as a poverty trap.

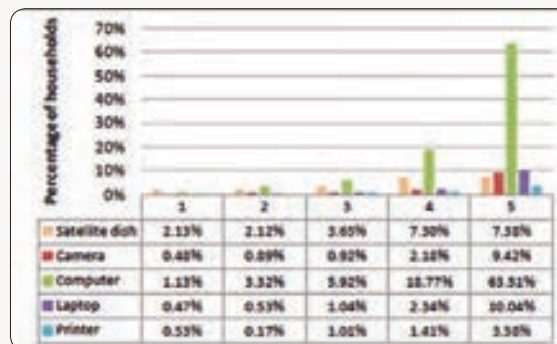
The series of figures below shows that substantial differences remain in the asset holdings of poor and affluent households, providing support for assets to play a large role in determining poverty. In particular, it is interesting to see that insurance products and luxury electronic equipment are bought almost exclusively by the most affluent. Debt is more evenly distributed, but more accessible to the affluent. There is a high concentration of assets amongst the most affluent. These assets include both investment assets that are a safe and reliable store of value, and durable assets, with a reasonable life span but lower resale values that might be purchased primarily because they enhance productivity or quality of life.

Figure 2.27: Insurance and debt by household expenditure quintile



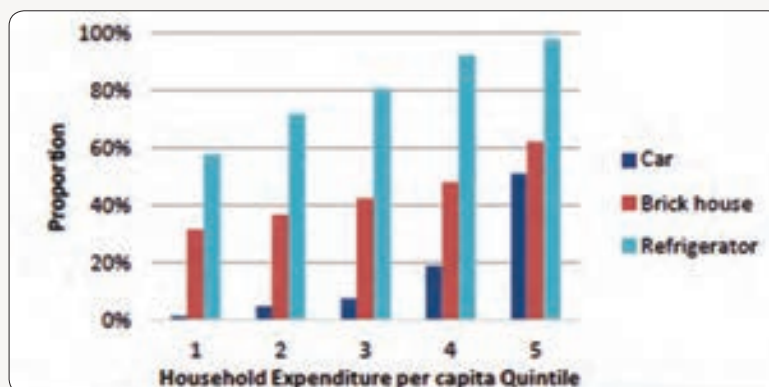
Notes: own calculations based on IES 2010.

Figure 2.28: Luxury electronic equipment by household expenditure quintile



Notes: Own calculations using IES 2010.

Figure 2.29: Car, house and household goods by household expenditure quintile



Notes: Own calculations using IES 2010.

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Carter and May (2001) and Adato et al. (2006) provide evidence that low levels of wealth and asset holdings can trap households in poverty. Households with assets below the dynamic asset poverty threshold will have few opportunities to escape poverty and are expected to collapse toward a low-level poverty trap. These researchers confirm their quantitative work with aligned, but more granular qualitative analysis.

The models shown below examine the relationship between assets and income with a dynamic model using the KIDS. The model includes four proxies for wealth and assets, namely access to formal and informal credit markets respectively, financial savings, and an asset index. The influence of assets is estimated by constructing an asset index with fourteen durable assets.⁶⁹ The problem with estimating the effect of assets on changes in income is that it can easily be confounded with the influence of income on enabling the purchase of assets, i.e. that the household is able to afford assets because of its high and growing income. To help distinguish the direction of causation of assets on income, i.e. whether a household generates higher income because of its high asset base, the model uses lagged values of assets.

Table 2.12 shows that the lagged asset index variable is positive and highly significant at a 1% level. This means that while the initial expenditure variable has a highly significant negative coefficient, implying that initially poor households are experiencing more income growth than richer households, the positive asset index variable indicates that households with a broader asset base are indeed experiencing faster growth. This finding supports the view that assets play an important role in households moving up the income distribution, as suggested by theory.

To interpret the effect of having cash savings, a further interaction term is introduced. This interaction term measures whether there is a special positive effect of having savings, depending on the household expenditure level. The interaction term is also important because of the problem of simultaneity: do savings have a positive growth effect or do households who grow faster save more money? The results seem to suggest two ways of telling the same story: firstly, savings increase one's ability to move up the income distribution, and this effect is larger for those initially poor. Secondly, there are some forces that tend to increase the income of the poor (i.e. convergence) and these effects are stronger for those with savings.

⁶⁹ The asset index is generated by using the multiple correspondence analyses (MCA). Checking the results by using the principal-component analysis (PCA) gave a very similar outcome. Since the asset variables are binary coded the MCA command is preferred (see Booyesen et al., 2008)

Table 2.12: Assets and income growth

	(1)	(2)	(3)
	OLS	FE	IV
VARIABLES	Change in income	Change in income	Change in income
Lagged income	-0.869*** (0.0382)	-1.352*** (0.0456)	-0.265 (0.397)
Access to formal credit markets	0.126*** (0.0333)	0.149*** (0.0397)	0.107* (0.0646)
Access to informal credit markets	0.000780 (0.0337)	0.0307 (0.0417)	-0.0273 (0.0579)
Savings	0.796*** (0.289)	0.984*** (0.376)	4.112** (1.962)
Savings * lagged income	-0.0717 (0.0454)	-0.111* (0.0592)	-0.607* (0.320)
Lagged assets holdings	0.224*** (0.0253)	0.124*** (0.0406)	0.0890 (0.108)
Years of education	0.00318 (0.0109)	-0.0204 (0.0202)	-0.0224 (0.0245)
Years ² of education	0.00289*** (0.000763)	0.00325** (0.00140)	0.00371*** (0.00134)
Constant	5.208*** (0.278)	8.172*** (0.364)	1.999 (2.202)
Observations: N	1416	1416	692
Adjusted R-squared	0.544	0.776	0.391
Number of HH: n	725	725	692

Notes: The model also includes a set of controls to capture geography and the demographic characteristics of the household; Robust standard errors appear in parentheses; *** p<0.01, ** p<0.05, * p<0.1

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The control variables are not shown, but are largely significant and have the expected signs. The effects of the productive assets, access to formal credit and cash savings, remain positive even after controlling for unobserved heterogeneity and using the IV approach in column 2 and 3. In particular, having savings now has an even larger growth effect which is strongest for poor households. This analysis confirms that a lack of assets and wealth can serve as a poverty trap in the presence of credit market constraints.

2.9 CONCLUSION AND SUMMARY

Child poverty has declined during the 2000-2010 period; the decrease in the headcount ratio using a money-metric approach is substantial (down from 76% to 49% at a R575 poverty line). Those who do remain poor tend to be younger (0-4 years), black (54% money-metric headcount) and are concentrated in the Eastern Cape (60% poverty rate), KwaZulu-Natal (59%) and Limpopo (61%) provinces. It is recognised that the high prevalence of HIV and AIDS in South Africa threatens child welfare through multiple channels; that children in lower income households have severely limited access to quality healthcare (less than 1% in lowest income quintile); receive low quality education; are less likely to live in households with highly educated parents (more than 90% household heads in the lowest two income quintiles have an educational level lower than matric); and are more likely to suffer social exclusion and maltreatment and to be exposed to violence and other adverse behaviour in their homes and broader communities. Children living in municipal districts that formerly made up the homelands are furthermore markedly more likely to be poor than children in other districts.

An MPI approach was used to determine the extent and severity of poverty along several dimensions for the 2008-2012 period. While MPI poverty declined over the four years, the change in the headcount ratio was modest (from 12% down to 9% for Index I). Analysis of the MPI indicators reveals that close to 90% of poor children had no access to adequate sanitation in 2012 while only 30% of these children had access to piped water in the home. Together with the prevalence of child abuse and violence, the incidence of FAS and unequal access to quality public services, an unsettling picture of human rights emerges. Many of the deprivations detailed in this chapter and elsewhere in the report are pronounced as human rights under the South African constitution and are to be upheld and promoted by the state. It behoves other civil organisations and, in particular, Chapter Nine institutions to hold government to its obligations. The next chapter considers poverty dynamics in more detail, investigating how the various mechanisms can interact to trap poor households in poverty.

MODELLING SOCIAL MOBILITY AND POVERTY TRAPS

3.1 Introduction

This chapter presents a deeper analysis into the constraints faced by children in South Africa and the extent to which these constraints affect their life outcomes. Using panel data, the characteristics linked with sustained poverty are analysed in a dynamic context. By employing a particular modelling framework (discussed in Section 3.2), households most at risk of being in a poverty trap are distinguished from those that are transitorily poor. Furthermore, those characteristics that are most strongly associated with persistent structural deprivation are identified, thereby highlighting target opportunities for policy intervention. Strong themes emerging from the data are the spatial pattern of poverty as well as the importance of education as a mechanism for breaking poverty traps. The historical roots underpinning both of these factors foreshadow an inertia that will be difficult to reverse. These two mechanisms are thus given prominence in this chapter. Section 3.3 analyses the relationship between location and socio-economic outcomes at the provincial and municipal level and discusses the implications of migration for sending and receiving areas. The chapter ends with a close look at the depth of learning inadequacy in the South African education system. Before discussing the modelling strategy and results, however, the next section presents some descriptive statistics on the poverty headcount ratio.

3.2 LIFE CHANCES AND SOCIAL MOBILITY

3.2.1 Modelling poverty dynamics

This section examines the determinants of persistent child poverty in an attempt to understand who is falling behind, and to look more specifically at how children are affected by these trends. For this purpose the theoretical framework developed by Carter and May (2001) is used to categorise poor households into 'structurally' and 'transitorily' poor. The data used come from the latest release of NIDS, a nationally representative survey which includes three waves of data collected in 2008, 2010 and 2012. The longitudinal nature of this data allows for a clearer determination of the factors most closely associated with structural chronic poverty.

Since the interest is specifically in the dynamics of child poverty, the analysis includes only those households which contain children. A 'child' is defined as any individual who remains in the dataset in all three waves and who was 18 years old or younger in 2012. Accordingly, the analysis follows all children aged roughly 0 to 14 years in 2008. Table 3.1 provides some indication of the relative size of the sample of children in the data. It contains the unweighted number of observations as well as percentage within the total sample, for the balanced as well as the unbalanced sample. In total, there are 6 739 individuals who have been defined as children and who remain in the sample.

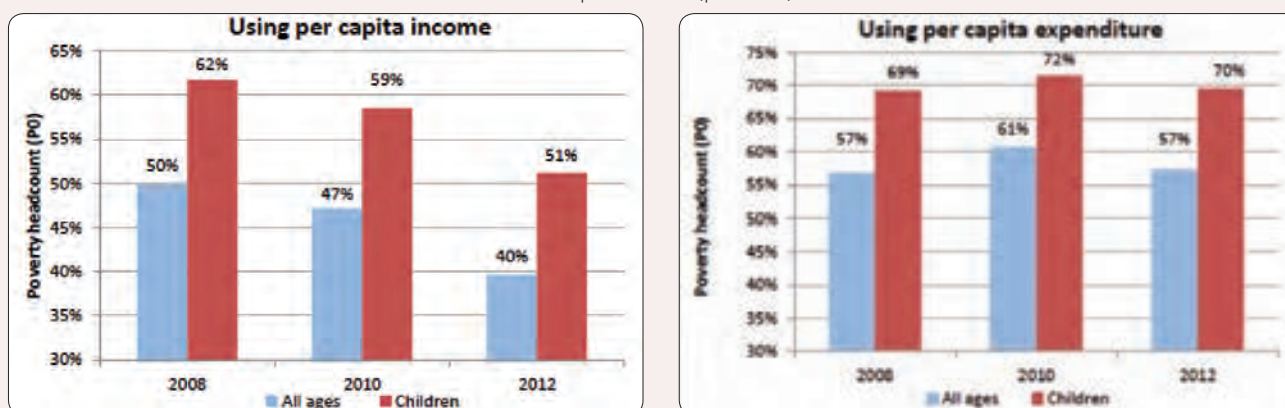
Table 3.1: Children as proportion of total sample

	Unweighted number and Percentage (Balanced panel)			Unweighted number and Percentage (Unbalanced panel)		
	2008	2010	2012	2008	2010	2012
Children (balanced definition, i.e. <18 in 2012)	6 739 (35.81%)	6 739 (35.81%)	6 739 (35.81%)	6 739 (23.88%)	6 739 (22.94%)	6 739 (20.36%)
Children (attriters and new births)	-	-	-	4 770 (16.90%)	5 334 (18.15%)	6 798 (20.54%)
Adults (older than 18 in 2008)	12 079 (64.19%)	12 079 (64.19%)	12 079 (64.19%)	16 717 (59.23%)	17 308 (58.91%)	19 563 (59.10%)
Total (100%)	18 818	18 818	18 818	28 226	29 381	33 100

3.2.2 Measuring poverty

Monthly per capita household income and expenditure is the main variable of interest. However, when measuring the poverty rate, the percentage of children, and not households, that are living in poverty is calculated. Using the poverty line of R575 monthly per capita household income, it is found that in 2008 more than 61% of the children lived in poor households. The percentage decreased to about 51% in 2012. Figure 3.1 also shows that households with children are still more vulnerable than those without. Comparing the poverty levels for a poverty line of R575 using income and expenditure, the poverty levels are much higher using household expenditure and there even appears to be an increase from 2008 to 2010 in poverty levels. This finding would stand in sharp contrast to other studies observing child and overall poverty discussed earlier. For this reason, expenditure might be underreported in the NIDS dataset and concentrate on using per capita household income measure in this paper. To minimise the effect of this measurement error, households are only classified as moving out of poverty if the per capita household income crossed the poverty line and the difference in the real income between the two periods exceeds 10%. This is in line with May and Woolard (2007) and Woolard and Klasen (2005).

Figure 3.1: Poverty headcount for balanced sample 2008-2012 using income (panel 1) and expenditure (panel 2)

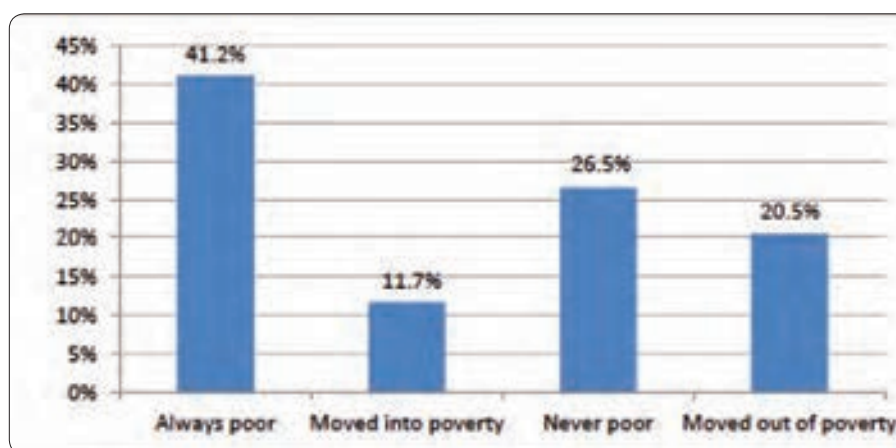


Notes: Own calculations using on NIDS

MODELLING SOCIAL MOBILITY AND POVERTY TRAPS

Figure 3.2 shows the poverty dynamics of children over the period 2008 to 2012, taking this robustness check into account. Children who were in poor households when they were first observed in 2008, and then again in poor households in 2012 when they were observed in the last wave of the data, constituted 41.2% of the sample of children. These children were chronically poor. Conversely, children who were observed in a non-poor household in both 2008 and 2012 constitute 26.5% of the sample. The remaining children in the sample either moved into or out of poverty (or are misclassified as a result of measurement error that has not been dealt with). Those children who were able to 'get ahead', i.e. who were observed in a poor household in 2008 but not in 2012, make up 20.5% and those who fell behind (non-poor in 2008; poor in 2012) 11.7%.

Figure 3.2: Poverty dynamics for children using per capita income (NIDS 2008-2012)



Notes: Own calculations using NIDS.

3.2.3 Breaking down poverty dynamics: a framework

Although the poverty transitions illustrated in Figure 3.2 helps to provide some indication of how children fared during the period 2008 to 2012, it does not answer the question as to why some children moved out of poverty and others not. In order to uncover the determinants of poverty dynamics, the theoretical framework developed by Carter and May (2001) is employed. This allows for parsing between those who are transiently poor and those stuck in a poverty trap. In addition to defining a money-metric poverty line, the method also requires the derivation of a basic 'asset threshold' that is consistent with the selected poverty line. This asset line is then used as a measure of the relative means a given household possesses that can be used to push them out of poverty. To distinguish this use of the term from other uses of the term 'assets' within this report, reference will be specifically to 'productive assets' in this section. This term is used to refer specifically to the broadest definition of the term, including "... conventional, privately held productive and financial wealth, as well as social, geographic and market access positions that confer economic advantage" (Carter and Barrett, 2006).

In line with traditional measurements of poverty, Carter and May (2001) identify households in poverty in any period if their income in that period is below the money-metric poverty line. In addition to this traditional poverty line,

Carter and May (2001) estimate an asset poverty line which is defined as the combination of productive assets that yield a household income that is exactly equal to the poverty line for that time period. In other words, a household in possession of these productive assets (as defined above), will be exactly on the money-metric poverty line for that period. For the single period case with a single asset, a simplified version of the original figure by Carter and May (2001: 1990) is presented as Figure 3.3 below.

Figure 3.3: Single-period income and asset poverty lines

Utility	Stochastically non-poor (households that earn above the money-metric poverty line, but whose productive asset ownership is below the productive asset poverty line)	Structurally non-poor (households that earn above the money-metric poverty line, and whose productive asset ownership is above the productive asset poverty line)
Poverty line	Structurally poor (households that earn below the money-metric poverty line, and whose productive asset ownership is below the productive asset poverty line)	Stochastically poor (households that earn below the money-metric poverty line, but whose productive asset ownership is above the productive asset poverty line)
		Productive Assets

Note: Taken from Carter and May (2001: 1990)

Each of the four quadrants in Figure 3.3 above indicates a poverty status that every household can be classified into. Those in the top left quadrant are labelled the stochastically non-poor households. These households are observed as being non-poor in terms of their earned income for the period, but given their asset ownership, they are expected to be in poverty (hence the term ‘stochastic’, which provides some indication that the poverty status of the household is not what one would expect given their productive assets, and may be the result of some positive shock which may dissipate with time and see their status slipping to ‘poor’). Households in the bottom right quadrant are also stochastic in their poverty, however they are observed to earn an income below the money-metric poverty line (because of negative shocks to their income, or entitlement failures) and are accordingly classified as being in poverty. However, since they are observed to the right of the asset poverty line, one would expect them to not be in poverty given their asset ownership.

Households in the top right quadrant are labelled structurally non-poor. They are households whose income is expected to exceed the income poverty line, given their combination of productive assets and indeed are observed to also be non-poor in the current period. Last, households that are in the bottom left quadrant have been classified structurally poor because their observed income is below the poverty line and they are expected to be in poverty given their asset ownership.

The dynamic analogue of the above single period is denoted by the dynamic poverty line, which Carter and May (2001) describe as the discounted present value of multiple sequential poverty lines. Households are then

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classified as being dynamically poor if their long-term expected income (conditional on their current asset-holding and optimal accumulation behaviour) is less than the discounted present value of future money-metric poverty lines. In other words, these households are expected to remain in poverty in the future, given their current productive asset holdings.

Households that find themselves below this threshold, in dynamic poverty, are in a poverty trap from which they are unable to escape. In other words if the household's asset levels are too low, they are unable to accumulate sufficient productive assets to be upwardly mobile. The dynamic poverty line is therefore a way in which to identify those households who are unable, given their initial endowment of productive assets, to be upwardly mobile and move out of their current levels of deprivation.

3.2.4 Deriving an estimate of structural child poverty in South Africa 2008-2012

Using this more nuanced definition of poverty, it is possible to break down each of the four poverty categories identified above. In classifying households as being either structurally or stochastically poor, the approach of May and Woolard (2007: 13) is followed. In the first place, the expected level of income, conditional on the household's asset endowment, is estimated using Ordinary Least Squares Regression (OLS). Using the output from these regressions, the expected levels of income are predicted for each household for each year. In order to provide a clearer picture of what is happening at different levels of income, a poverty index is constructed by dividing the monthly household per capita income or expenditure by the poverty line, which provides an index with a minimum value of zero and which equals one if the household lies exactly on the poverty line. Using this index, it is simpler to identify the number of individuals or households below or on the poverty line, as well as those living below 0.5 of the poverty line and those living at a level which is double the poverty line. The results from these regressions are set out in Table 3.2 below.

Table 3.2: Regression output for estimating asset poverty

	2008	2010	2012
Number of employed in hh	0.321*** (0.006)	0.423*** (0.006)	0.406*** (0.005)
Log (subsistence)	-0.679*** (0.011)	-0.752*** (0.011)	-0.712*** (0.010)
Proportion of hh pension-age	1.288*** (0.040)	1.201*** (0.040)	1.098*** (0.034)
Poverty in district council	-0.178*** (0.066)	-0.522*** (0.069)	-0.052 (0.061)
Living Index	0.185*** (0.009)	0.126*** (0.009)	0.166*** (0.007)

	2008	2010	2012
HH lives in rural area	-0.182*** (0.045)	-0.356*** (0.047)	-0.184*** (0.042)
Mean years of education in hh	0.061*** (0.002)	0.059*** (0.002)	0.067*** (0.002)
Proportion of hh children (<18 years in 2012)	-0.143*** (0.030)	-0.041 (0.030)	-0.055** (0.026)
HH owns dwelling	0.139*** (0.014)	0.137*** (0.014)	0.124*** (0.012)
HH owns radio	0.102*** (0.012)	0.132*** (0.012)	0.116*** (0.012)
HH owns television	0.090*** (0.014)	0.086*** (0.016)	-0.003 (0.015)
Constant	4.565*** (0.089)	5.125*** (0.089)	4.820*** (0.077)
N	17600	17600	17600
R-squared	0.504	0.505	0.559

Notes: OLS regressions. Specification also includes provincial fixed effects as well as interaction effects between province and rural. * p<0.01, ** p<0.05, * p<0.1**

The outcome variable is the log of the poverty index. The higher the household income, the larger the log poverty index. Controls are then included which meet the definition of “productive assets” discussed earlier, i.e. in the sense that they are a precondition for households to be able to earn an income above the poverty line.

The coefficients have the expected signs. Having more members in the household who are employed and have more years of education are positively correlated with a higher income. Asset ownership and access to basic services and amenities are also positively correlated with the household’s income. In addition, poverty in the district council and living in a rural area are negatively correlated with income. Having a larger proportion of household members who are of pension-eligible age is positively correlated with higher income, however having more children relative to the household size is negatively correlated with income.

From these regressions, one can predict each household’s asset poverty index, conditional on its actual asset ownership. Since this prediction is likely to be influenced by measurement error, the approach taken by May and Woolard (2007) is again followed by making use of an 80% confidence level around each predicted poverty index, as a robustness check to minimise the impact of measurement error. Accordingly, a household is only identified as being stochastically non-poor if the lower bound of the confidence interval of the predicted poverty index lies above 0 (i.e. the log of 1, which is all instances where the household is earning an income exactly equal to the poverty

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line). Also, a household is only identified as being stochastically poor if the upper bound of its confidence interval lies below 0. For all other cases, where the confidence intervals are both sides of zero, it is not possible to classify the household as being either stochastically poor or non-poor based on their asset ownership and therefore these households are left out of the final sample.⁷⁰

In other words, a household is expected to be poor (lie below the asset poverty line) if it is possible to reject the hypothesis that the expected income of the household, given its current ownership of productive assets (as predicted in the OLS regression above) is larger than the money-metric poverty line (hypothesis 1). Conversely, households are classified as non-poor if it is possible to reject the possibility that the expected income of the household, given its current ownership of productive assets (as predicted in the OLS regression above) is smaller than the money-metric poverty line (hypothesis 2). Table 3.3 presents the transition matrix for the period 2008 to 2012 using the NIDS data below.

First, a simple comparison between income poverty and asset poverty is presented for a single period, replicating Figure 3.3 for 2008 and then again for 2012. These tables are set out in Appendix 3. In 2008, more than 50% of the sample of children comes from households that are structurally poor, while almost 30% are from households that are structurally non-poor. In 2012, in line with what has been said previously, structural poverty decreased, and only 39% of children remained in structural poverty, while 41% of children came from households which were structurally non-poor in that year.

This static analysis is extended across years in order to obtain an indication of dynamic poverty over the period 2008-2012, as set out below.

Table 3.3: Structural and Stochastic poverty 2008-2012

		2012	
		Poor	Non-Poor
2008	Poor	41.24% are chronically poor, of which -5.54% experienced dual entitlement failures*** -Structurally poor 94.46%	20.50% got ahead, of which -26.06% stochastically poor in 2008* -Structurally mobile 73.92%
	Non-Poor	11.73% fell behind, of which: -52.09% stochastically poor in 2012** -Structurally downward 47.91%	26.53% were never poor, of which -6.39% had benefitted from dual windfalls**** -Structurally never poor 93.61%

Notes:

* Households for which reject hypothesis 2 in 2012.

**Households for which reject hypothesis 2 in 2008 and hypothesis 2 in 2012.

***Households for which reject hypothesis 2 in 2008 and hypothesis 2 in 2012.

****Households for which reject hypothesis 1 in 2008 and hypothesis 1 in 2012.

⁷⁰ In 2008, 3.80% of the 2008 sample of children is lost and in 2012, 3.23% of the 2012 sample.

Now using the asset-poverty framework, it is possible to break these sub-samples down further into those children who were stochastically poor and those who were structurally poor. Of the children who were observed to be chronically poor (poor in both periods), there is a small proportion (5.54%) who were not expected to be in poverty, given the asset ownership of their households in both 2008 and 2012. These children live in households where the income was below the poverty line in both periods, not because of their inability to generate more income, but because for some reason they happened to experience low incomes in both periods. An estimate is obtained of an upper bound of 94.46% who are in structural poverty (i.e. expected to be poor in at least one or both period). It is these 94.46% children who have the greatest risk of being in dynamic poverty or in a poverty trap, which they will not be able to escape over time.

Calculating the number of children affected by structural poverty, it is found that 38.96% of children in the sample were structurally poor during the period 2008 to 2012, whereas 24.83% of the sample was structurally non-poor. Of the remaining sample, 15.15% of the children were structurally upward mobile and 5.62% of them were structurally downward mobile. These statistics are summarised in Table 3.4.

Table 3.4: Structural versus stochastic poverty summarized

		2012	
		Poor	Non-Poor
2008	Poor	38.96% structurally poor * 2.28% stochastically poor	15.15% structurally mobile (upward)* 5.34% stochastically mobile
	Non-Poor	5.62% structurally mobile (downward)* 6.11% stochastically mobile	24.83% structurally non-poor* 1.70% stochastically non-poor

Notes: *These estimates are an upper bound. For each of the categories, the stochastic group is identified first by looking at households which have been categorised as being income poor, but asset non-poor, and vice versa. Thereafter, the structurally poor households are identified as all households who were structurally poor in one or more of the periods.

In order to summarise what has been said below, a summary table has been included in Appendix 3, to this chapter which sets out all of the poverty definitions which have been implemented so far, along with their explanations.

The next question of interest is to find out more about these children who were dynamically poor, i.e. the children who were observed to be in structural poverty in both 2008 and 2012 and would therefore appear to be in a poverty trap. In order to explore the differences between children who were in a poverty trap and those who were chronically poor (i.e. observed to be below the poverty line in 2008 and 2012) but not structurally poor (i.e. were observed above the asset poverty line), the mean and standard error per group are calculated. These statistics are set out in Table 3.5. The t-statistic is also reported to highlight statistically significant differences.

Table 3.5: Children in structural chronic poverty versus children in stochastic chronic poverty 2008-2012⁷¹

	Children in structural chronic poverty (trapped in poverty)	Children in stochastic chronic poverty	T-stat
	Mean (standard error)	Mean (standard error)	
Average Initial conditions 2008			
HH per capita monthly income	285.66 (2.30)	391.27 (10.00)	9.78
HH per capita monthly expenditure	268.44 (3.52)	491.57 (24.84)	13.09
Asset index of hh	-0.85 (0.01)	0.02 (0.04)	14.90
Mean subjective wellbeing in hh (scale from 1 to 10)	4.71 (0.04)	5.07 (0.18)	2.01
HH size	7.37 (0.06)	5.51 (0.25)	-6.67
HH has insurance = 1 if yes	0.39 (0.01)	0.46 (0.04)	1.68
Proportion of hh children	0.48 (0.00)	0.43 (0.01)	-4.00
Proportion of hh pensioners	0.05 (0.00)	0.03 (0.01)	-1.96
Mean age of hh	20.20 (0.10)	21.22 (0.53)	2.11
Number of employed in hh	0.78 (0.02)	1.54 (0.11)	8.97
Mean years of education in hh	6.28 (0.05)	9.17 (0.17)	12.20
Female-headed hh	0.56 (0.01)	0.62 (0.04)	1.25
Poverty head-count in district	0.51 (0.00)	0.43 (0.01)	-7.56
HH received grants = 1 if yes	0.88 (0.01)	0.77 (0.04)	-3.88
Mother's education	7.27 (0.07)	9.61 (0.22)	2.97
Child stunted = 1 if yes	0.16 (0.01)	0.13 (0.03)	-0.99
Child hunger = 1 if often or always	0.34 (0.01)	0.21 (0.03)	-3.22
Changes from 2008-2012			
Change in number of pensioners in hh	0.01 (0.01)	-0.06 (0.04)	-1.42
Child moved households between 2008 and 2012 = 1 if yes	0.13 (0.01)	0.17 (0.03)	1.27
Observations	3 155	150	

As expected, the initial conditions in the households of children in 2008 already diverged depending on whether the household was in structural or stochastic poverty. The households of children who were in structural poverty were significantly poorer in terms of asset-ownership as well as income and expenditure measures. In addition, these children were living in more crowded conditions, with more individuals per household and in younger households

⁷¹ See appendix for complete table.

where there were significantly more children and pension-age individuals. These conditions are indicative of what has been described by De la Rocha (1994) as the life-cycle of households where young households that are newly formed are more likely to be in poverty, and are able to escape this poverty as the household matures.⁷²

Household members of these children who were in a structurally poor household were less educated and less likely to be employed. They were also less likely to have access to insurance. The children in these structurally poor households also had mothers who are less educated on average. They were more likely to report being hungry, and more likely to be stunted and to have repeated a grade (although these last two differences are not significant). All of these factors took their toll on the household's average levels of satisfaction with life, which were significantly lower than that of households that were stochastically poor. Respondents' reported life satisfaction (as reported in Figure 2.22 in the previous chapter) reveals how happiness differs among young people based on their position in the distribution of income.

In terms of the movements in poverty between 2008 and 2012, children in households who were structurally poor were significantly less likely to move out of their original household in 2008 to new households in 2012 than children in households who were stochastically poor. This fact, in addition to the fact that these structurally poor households had an increase in pension-age members (whereas in households who were stochastically poor there was a decrease in pension-age members), provides some indication that there might be some form of household formation which is correlated with the poverty status of the household. As set out later in the report, one potential explanation for this phenomenon comes from the work of Klasen and Woolard (2005), who found that unemployed attach themselves to households with old age pensions even though this disadvantages them in terms of finding a new job in the long run.

Using these descriptive statistics, some additional insights into the characteristics of these households who are trapped in poverty can be gleaned. It is clear that these households are the most vulnerable and that children make up a large proportion of these households. However, in order to obtain more concrete evidence of the potential causes, a more robust analysis is required.

3.2.5 The determinants of welfare change over time

Having classified children into the various poverty-status categories, the next step is to determine the causal mechanisms through which some households manage to escape the poverty trap over time, and thereby highlight the constraints that preclude other households from doing the same. The literature describes several potential characteristics which are more prevalent under households that display no mobility over time (Woolard and Klasen, 2005). These characteristics are accordingly highlighted as being correlated with households that find themselves in a poverty trap. They include large initial household sizes, especially households with many children (a so-called "demographic poverty trap"), low initial levels of education, low initial levels of assets, and households with low initial levels of employment. All of these factors have an especially negative impact on the wellbeing of children and influence children directly.

Table 3.6 presents a comparison of some initial household characteristics of the four groups in 2008 and then again some changes which took place between 2008 and 2012. Comparing the household group means reveals how much more deprived and vulnerable children are within the three groups who have been exposed to a period of poverty

⁷² An important point must be made at this stage regarding the relationship between pension-eligible adults in the household and poverty. As set out in Table 3.2, a higher proportion of pension of household members who are of pension-eligible age is positively correlated with higher household income. However, if one focusses on the chronically poor group alone, the stochastically chronically poor group have less pension-aged individuals than the chronically structurally poor group. In addition, this chronically stochastically poor group earns less from pensions than the structurally chronically poor group, as Table 3.5 indicates. It should be noted that the group of structurally chronically poor households is very small. Accordingly, it would appear that this small sub-group is not as dependent on the state old age pension as the larger structurally chronically poor group. This confirms the hypothesis that the small sub group of chronically structurally poor households are dependent on other assets, as contained in the regression in Table 3.2. It does, however, suggest that there could be a way out of poverty for these households if they had access to grants that were not dependent on the age of their household members. In other words, the current structure of the state old age pension and child support grant only excludes a very small group of children who remain in stochastic chronic poverty.

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relative to the group who has never been in poverty. Income, expenditure and asset ownership are significantly less within the former groups. Households are larger and with more children. Households are more likely to be female-headed and reside in rural areas. The education levels of these household members are much lower and consequently their labour market prospects less promising, as evidenced by the small number of employed individuals in these households.

Some of the changes in poverty status also appear to correlate with changes in household circumstances. For example, children in households who got ahead and moved out of poverty appeared to reside mainly in households that experienced a reduction in size over the four year period. These households also managed to increase the number of employed individuals in the household.

Table 3.6: Descriptive statistics per poverty category

	Chronically poor (poor in 2008 and 2012)	Non-poor (non-poor in 2008 and 2012)	Fell behind (non-poor in 2008 and poor in 2012)	Got ahead (poor in 2008 and non-poor in 2012)
Initial conditions 2008	Mean (standard deviation)			
HH per capita monthly income	290.44 (128.89)	1814.73 (2146.05)	1062.86 (937.19)	339.74 (135.33)
HH per capita monthly expenditure	278.53 (205.89)	1535.87 (2100.59)	752.81 (1179.84)	396.10 (345.79)
Asset index of hh	-0.81 (0.71)	0.50 (0.87)	-0.21 (0.83)	-0.33 (0.76)
Crowding in hh (>2 persons per room)	0.46 (0.50)	0.17 (0.37)	0.25 (0.43)	0.35 (0.48)
Mean subjective wellbeing in hh (scale from 1 to 10)	4.73 (2.08)	6.17 (1.93)	5.35 (1.91)	5.24 (2.12)
HH size	7.29 (3.31)	5.30 (2.28)	6.03 (2.64)	6.67 (3.32)
HH has insurance =1 if yes	0.40 (0.49)	0.72 (0.45)	0.55 (0.50)	0.47 (0.50)
Proportion of hh children	0.48 (0.15)	0.38 (0.14)	0.41 (0.15)	0.43 (0.15)
Proportion of hh pensioners	0.05 (0.08)	0.05 (0.11)	0.08 (0.12)	0.05 (0.10)
Mean age of hh	20.25 (5.71)	24.90 (6.80)	24.20 (6.87)	22.12 (6.40)
Number of employed in hh	0.81 (1.02)	1.55 (1.05)	1.31 (1.14)	0.78 (0.88)
Mean years of education in hh	6.41 (2.85)	9.46 (3.03)	7.69 (2.74)	7.35 (2.73)
Female-headed hh	0.57 (0.50)	0.36 (0.48)	0.53 (0.50)	0.52 (0.50)
Rural hh	0.78 (0.42)	0.32 (0.47)	0.57 (0.50)	0.61 (0.49)
Poverty head-count in district	0.51 (0.13)	0.37 (0.15)	0.44 (0.15)	0.46 (0.14)
HH owns dwelling	0.36 (0.48)	0.67 (0.47)	0.56 (0.50)	0.51 (0.50)
HH owns TV	0.50 (0.50)	0.86 (0.35)	0.72 (0.45)	0.70 (0.46)
HH owns radio	0.63 (0.48)	0.71 (0.46)	0.70 (0.46)	0.67 (0.47)
HH experienced at least one shock in last 24 months (self-reported)	0.24 (0.60)	0.27 (0.64)	0.27 (0.56)	0.27 (0.60)
HH received grants = 1 if yes	0.87 (0.34)	0.52 (0.50)	0.84 (0.37)	0.81 (0.39)

	Chronically poor (poor in 2008 and 2012)	Non-poor (non-poor in 2008 and 2012)	Fell behind (non-poor in 2008 and poor in 2012)	Got ahead (poor in 2008 and non-poor in 2012)
Initial conditions 2008	Mean (standard deviation)			
Mother's education	7.37 (3.75)	10.27 (3.04)	9.13 (3.17)	8.60 (3.41)
Child stunted = 1 if yes	0.16 (0.37)	0.10 (0.30)	0.12 (0.33)	0.14 (0.34)
Child hunger = 1 if often or always	0.34 (0.47)	0.09 (0.28)	0.19 (0.39)	0.24 (0.43)
Child ill (3 days in last month, self-reported)	0.08 (0.28)	0.10 (0.30)	0.08 (0.26)	0.08 (0.27)
Child repeated a grade = 1 if yes	0.27 (0.44)	0.19 (0.39)	0.20 (0.40)	0.22 (0.41)
Child double orphaned	0.03 (0.17)	0.03 (0.16)	0.04 (0.19)	0.03 (0.18)
Black African child	0.94 (0.25)	0.67 (0.47)	0.85 (0.36)	
Changes from 2008-2012				
Change in number of pensioners in hh	0.01 (0.55)	0.01 (0.47)	-0.04 (0.57)	-0.02 (0.53)
Change in hh size 2008-2012	0.29 (3.08)	-0.01 (1.86)	0.02 (2.43)	-0.51 (2.90)
Child moved households between 2008 and 2012 = 1 if yes	0.13 (0.34)	0.17 (0.37)	0.19 (0.40)	0.22 (0.42)
Change in number of employed in hh	-0.23 (1.08)	-0.16 (1.11)	-0.38 (1.30)	0.64 (1.15)
HH experienced at least one shock in period 2008-2012 (self-reported)	0.37 (0.74)	0.38 (0.69)	0.28 (0.62)	0.36 (0.72)
Observations	3 305	1 451	790	1 412

In order to explore the potential causes of poverty dynamics in a more robust manner, two regressions are run using the change in the log of per capita income as the outcome variable. In this way, it is possible to capture both the economic (income) and demographic (household size) impacts identified by Woolard and Klasen (2005). The results are reported in Table 3.7.⁷³

Table 3.7: OLS regression on income changes 2008-2012

	(1)	(2)
	OLS	Pooled OLS
	Change in log (Income per Capita) between 2008 and 2012	Change in log (Income per Capita) between 2008-10 and 2010-12
Ln (Income per Capita in last wave)		-0.628***
Ln (Income per Capita in 2008)	-0.668***	
Female household head	-0.035	-0.075***
Years of education household head	-0.047***	-0.037***
Years of education squared household head	0.007***	0.006***

⁷³A robustness check, to correct for measurement error, was also conducted. The results are reported in the appendix below (Table 3A2).

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	(1)	(2)
	OLS	Pooled OLS
	Change in log (Income per Capita) between 2008 and 2012	Change in log (Income per Capita) between 2008-10 and 2010-12
Age household head	0.008***	0.007***
Urban	0.022	0.021
Coloured	0.059	0.025
Indian	0.380***	0.312***
White	0.440***	0.362***
Household head employed	0.277***	0.313***
Number of household residents	-0.034***	-0.038***
Share of elders	0.159**	0.173***
Share of children	-0.814***	-0.685***
Household moved	0.096**	0.056
Living index in last wave		0.133***
Living index in 2008	0.066***	
HH received grants in last wave		-0.234***
HH received grants in 2008	-0.323***	
HH got new grants	-0.207***	-0.118***
Change in number of workers in HH	0.174***	0.186***
Change in household size	-0.048***	-0.061***
Year 2010		-0.102***
Constant	4.723***	4.250***
Observations	5 799	11 291
R-squared	0.540	0.457

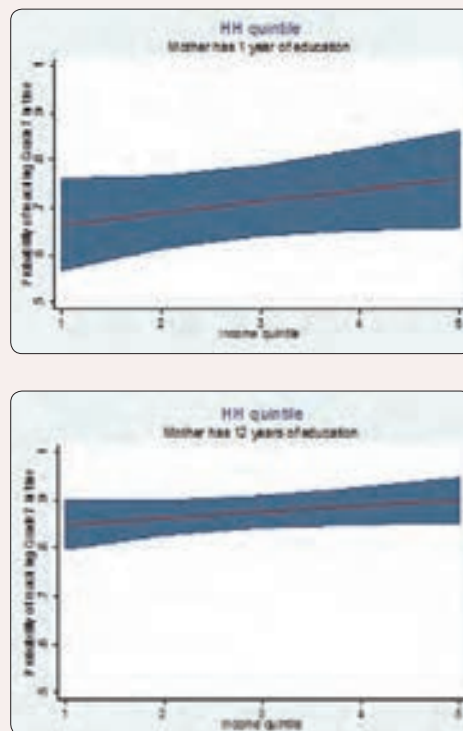
*** p<0.01, ** p<0.05, * p<0.1

The results of the regression analysis show significant convex returns to education, captured by the inclusion of the education and education squared variables for the household head, as a proxy of the education levels for the rest of the household members. A threshold of 7 years of education needs to be exceeded to gain significant positive returns to education. Attaining seven years of education does seem to be a less trivial achievement for children in low-income households where mothers have low levels of education than for their wealthier counterparts. Figure 3.4 gives the graphical illustration of a logit model⁷⁴ used to determine the probability of reaching grade 7 on time⁷⁵. A large jump in the probability of reaching Grade 7 in time is observed for children having a mother with 12 years instead of 1 year of education. This highlights the importance of mother's education independent of the income situation of the household. Furthermore, the size of the confidence interval emphasises that there is much less unexplained variation when the mother has 12 years of education.

⁷⁴ NIDS 2008 data are used in this regression.

⁷⁵ See appendix (Table 3A3) for the full regression results.

Figure 3.4: Correlation between mother’s education/ income quintile and reaching Grade 7 in time



The importance of education as a driver of structural poverty is also observed in other data sources. Using the KIDS data set, a model regressing changes in expenditure on a set of explanatory variables, suggests education to be a crucial determiner of chronic poverty.

Table 3.8 shows the output-matrix of the static model regression for education. The first column indicates that a household with at least some primary education has 14% higher adult equivalent expenditure per capita levels than households without education at the mean. In contrast, having tertiary education would result in 175% higher levels of adult equivalent expenditure per capita on average. In addition, the coefficients become more significant as the level of education achieved rises. While these results suggest rising returns to education, the second column confirms this.⁷⁶ To interpret the returns to education in the second column, the initial level of education must be taken into consideration. While one more year of education leads to about a 1% increase of adult equivalent expenditure for those with one year of initial education, the effect of an additional year would be about 68% for those who already had 12 years of education.

The convex returns to education become even more prominent when looking at the fixed effect estimation shown in column 3 of Table 3.8. There is only a positive return to education after 7 years of initial education. Since the FE estimation is more consistent than the OLS model, these results strongly support the idea of poverty traps below a certain threshold of education

⁷⁶ The null hypothesis that the variables relating to years of education and its square (yeduc and yeduc2) are not jointly significant can be rejected at a 1% level.

Table 3.8: Static model education regression

VARIABLES	(1)	(2)	(3)
	OLS Ln (AEE)	OLS Ln (AEE)	FE Ln (AEE)
Primary Education	0.131*** (0.0365)		
Secondary Education	0.404*** (0.0411)		
Matric	0.649*** (0.0543)		
Tertiary Education	1.010*** (0.0794)		
Years of Education		0.00733 (0.00951)	-0.0304** (0.0150)
Years ² of Education		0.00414*** (0.000719)	0.00455*** (0.00103)
Age	0.0366*** (0.00458)	0.0393*** (0.00449)	0.0356*** (0.00616)
Age ²	-0.000317*** (4.75e-05)	-0.000332*** (4.69e-05)	-0.000334*** (6.59e-05)
Male	0.0505 (0.0328)	0.0382 (0.0321)	0.124* (0.0740)
1998 Year Dummy	-0.135*** (0.0287)	-0.116*** (0.0287)	-0.126*** (0.0287)
1993 Year Dummy	0.169*** (0.0300)	0.195*** (0.0298)	0.146*** (0.0323)
Rural	-0.574*** (0.0828)	-0.541*** (0.0818)	
KwaZulu	0.170*** (0.0520)	0.168*** (0.0521)	
KwaZulu* Rural	0.282***	0.263***	

	(1)	(2)	(3)
	OLS	OLS	FE
VARIABLES	Ln (AEE)	Ln (AEE)	Ln (AEE)
	(0.0890)	(0.0880)	
Share of migrants in HH	0.218**	0.219**	0.334***
	(0.104)	(0.102)	(0.124)
Share of male adults (under 65) in HH	-0.153*	-0.153*	-0.0470
	(0.0866)	(0.0852)	(0.102)
HH Size (Adult Equivalents)	-0.121***	-0.119***	-0.146***
	(0.00782)	(0.00773)	(0.00943)
Dependency Ratio	-0.182**	-0.178**	-0.00947
	(0.0752)	(0.0744)	(0.0942)
Constant	5.755***	5.628***	5.893***
	(0.138)	(0.137)	(0.198)
Observations: N	2110	2110	2110
Adjusted R-squared	0.365	0.378	-0.144
Number of HH: n	725	725	725

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Reference group for the educational dummies: No education.

Table 3.8 also shows that the asset index of the last period is highly significantly correlated with positive income change. Furthermore, having an employed household head as well as the change in number of workers in the household are significant positive factors explaining income change. As expected the household size as well as the change in household size have a significant negative impact on income growth. Interesting is the finding that receiving grants in 2008 or getting a new grant in-between 2008 and 2012 also has a negative impact on income change. Woolard and Klasen (2005) explain this finding by observing that the unemployed attach themselves to household's with old age pensions even though this may disadvantage them in terms of finding a new job in the long run. On the other hand, the share of pension-age individuals has a positive coefficient and the share of children in a household a negative one. Hence, having too many children in the household can lead to some kind of poverty trap whereas the presence of older people in the household, and their income, can have a positive growth effect.

The geographic aspect of poverty in South Africa manifests glaringly in the data when considering structural poverty only. Table 3.9 below shows the distribution of structurally poor children by province.

Table 3.9: Distribution of structurally poor children by province in 2012

Province	Percentage structurally poor per province
Western Cape	4.43%
Eastern Cape	22.04%
Northern Cape	1.31%
Free State	4.18%
KwaZulu-Natal	31.38%
North West	6.03%
Gauteng	6.90%
Mpumalanga	6.13%
Limpopo	17.60%
Total	100

Kwazulu-Natal and the Eastern Cape together represent more than half of all structurally poor households in South Africa. Such a stark spatial pattern of deprivation warrants further investigation, an exercise undertaken in the next section.

3.3 GEOGRAPHY AND POVERTY

Owing to past policies of racial segregation and a skewed allocation of resources to different areas, poverty in South Africa bears a glaring spatial dimension. Chapter 2 shows how this spatial – or geographic – characteristic of poverty manifests itself at various scales; neighbourhood, municipality, region and, perhaps most evidently, provincial. This chapter analyses the link between geographical location and child poverty as well as the differences in a number of outcomes for children who live in South Africa’s poorer regions versus those who do not. To this end data from the 2001 Census and the Community Survey of 2007 are used due to the vast coverage of these larger surveys. The primary units of analysis will be provinces, municipalities and households within those municipalities⁷⁷. Chapter 2 reported on the differences in child poverty headcount measure by province and municipality. This section considers the various factors which predispose households (and the children living in them) to social exclusion, how these differ among provinces, and how these differences influence migration patterns and its implications for the demographic profile of provinces by looking particularly at the Western and Eastern Cape.

3.3.1 Measures of deprivation by region

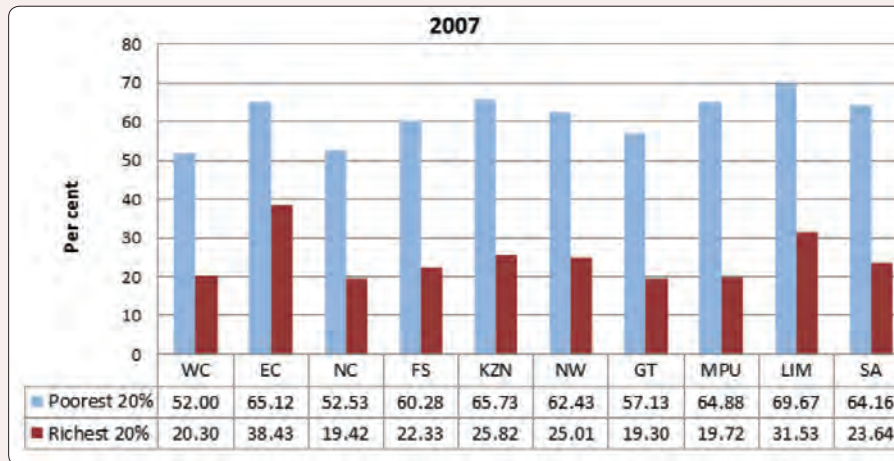
Child poverty discussions quite often open with an analysis of family structure. Female-headed households are generally more likely to be poor (see for example Rodgers (1996) and Harding et al. (2006)). Many such studies attribute most of the increases in poverty over time to the changing family structure in the same period, with particular emphasis being placed on the ‘high poverty risk’ associated with female-headed households.

Figure 3.5 shows the percentage of children per province living in female-headed households in 2007. In 2007 just over 50% of children lived in female-headed households, with those households which are poorest most likely to

⁷⁷ Child deprivation is analysed at the household level as most children do not earn their own incomes nor own their own assets. A household per capita income is assigned to individual household members at equal weights – assigning equal weights to children and adults yields similar results to alternative weighting strategies (Streak, Yu and Van der Berg, 2009).

be headed by females within each province. There are distinct regional differences as well: even when one only considers South Africa's richest 20% of households, the poorer provinces such as the Eastern Cape and Limpopo have the highest rates of female-headed households⁷⁸.

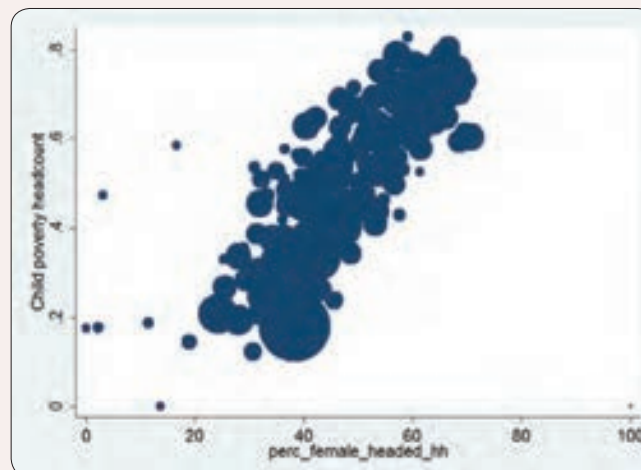
Figure 3.5: Percentage of children living in female-headed households headed by province in 2007



Notes: Own calculations using Census 2001 and Community Survey 2007.

From a more granular perspective, the correlation between municipal poverty headcounts and the proportion of households headed by females is shown in Figure 3.6 below. The scatter plot illustrates the strong regional association between child poverty and gender of the household head.

Figure 3.6: Relationship between municipal poverty headcounts and percentage of children living in households headed by females 2007



⁷⁸ The proportion of female-headed households by province is similar to what it was in 2001.

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Notes: Own calculations using the Community Survey 2007.

Table 3.10 shows that the regional distribution of employed household heads too is skewed towards more affluent provinces, although a positive change – largely occurring in the poorest provinces – is observed between 2001 and 2007.

Table 3.10: Percentage of children living in household where head is employed⁷⁹

	2001	2007	% point increase
Western Cape	62.52	66.92	4.4
Eastern Cape	20.72	31.91	11.19
Northern Cape	47.2	49.1	1.9
Free State	44.25	47.47	3.22
KwaZulu-Natal	29.9	38.6	8.7
North West	36.93	40.53	3.6
Gauteng	56.15	63.34	7.19
Mpumalanga	39.16	49.43	10.27
Limpopo	23.7	31.26	7.56
SA	36.57	44.99	8.42

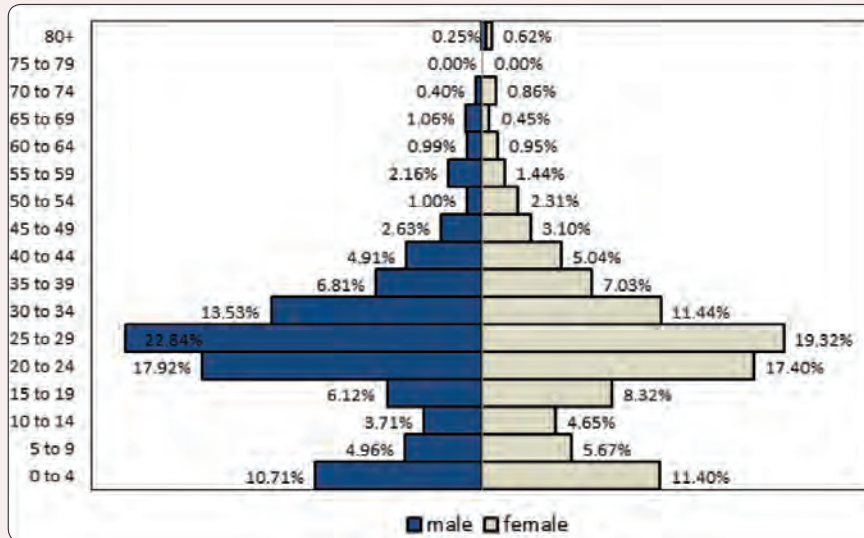
Notes: Own calculations using Census 2001 and Community Survey 2007.

Employment opportunities are largely a function of the strength of the local labour market and the education level and experience of the labour market participant. The average education of household heads by municipality is explained to a large degree by the age structures of these regions. Poor regions are not only human capital deficient because the underlying education production processes are poor, but also because returns to education differ dramatically by region. Differentials in the returns to education between regions encourage younger, more educated adults to migrate to more affluent regions with better labour market conditions, leaving a highly skewed population age structure in the sending region.

The consequences of such migration can be illustrated by considering two provinces: the Eastern Cape, being a sending province; and the Western Cape, being a receiving province. Figures 3.7 and 3.8 contrast the Eastern Cape to Western Cape migration stream between 2002 and 2007 and those who remained in the Eastern Cape to show the impact of migration on population age structures in sending regions. Of the migrants shown below, 61.1% are between the ages of 20 and 40. Only 25.5% of individuals in the same age group are left behind in the sending municipality.

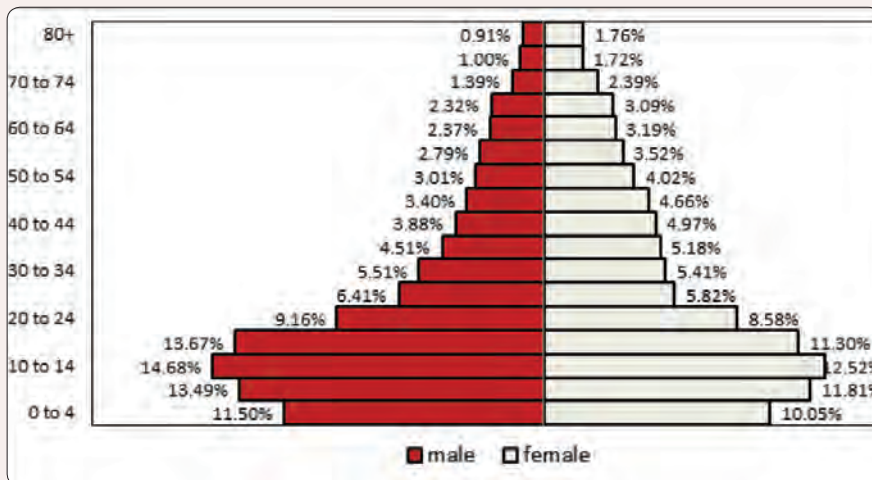
⁷⁹ Only households where heads were 15 to 65 years old were considered.

Figure 3.7: Age structure of migrants moving from Eastern to Western Cape 2002 to 2007



Notes: Own calculations using Community Survey 2007.

Figure 3.8: Age structure of non-migrants in the Eastern Cape 2002 to 2007



Notes: Own calculations using Community Survey 2007.

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An analysis of the KIDS data reveals that households that have migrated tended to improve their relative welfare status. Table 3.11 gives the results of the dynamic model distinguishing between three different samples (rural, urban and all households). All three proxy variables for living in a beneficial environment (indicating whether or not a household has access to basic facilities and social capital) have positive coefficients. Furthermore, the dummy variable HH has moved community seems to have a positive welfare effect over time.

Table 3.11: Growth model: Location/ social capital effects

	(1)	(2)	(3)
	Urban	Rural	All HH
VARIABLES	$\Delta \text{Ln (AEE)}$	$\Delta \text{Ln (AEE)}$	$\Delta \text{Ln (AEE)}$
Ln (AEE) Previous Period	-0.855*** (0.0643)	-0.788*** (0.0325)	-0.821*** (0.0300)
Access to Water	0.150 (0.0980)	0.211*** (0.0491)	0.147*** (0.0495)
Electricity	0.216* (0.123)	0.129*** (0.0368)	0.148*** (0.0552)
Flush Toilet	0.185** (0.0758)	0.226*** (0.0866)	0.228*** (0.0739)
HH has moved community	0.129 (0.0946)	0.0954 (0.0815)	0.175*** (0.0607)
Rural			-0.156 (0.295)
KwaZulu	-0.103 (0.0626)	0.0959 (0.0824)	-0.205* (0.124)
KwaZulu* Rural			-0.00334 (0.308)
Share of migrants in HH	-0.206 (0.256)	0.286** (0.142)	0.241* (0.133)
Constant	4.477*** (0.510)	4.141*** (0.260)	4.679*** (0.265)
Observations: N	341	1075	1416
Adjusted R ²	0.525	0.484	0.513

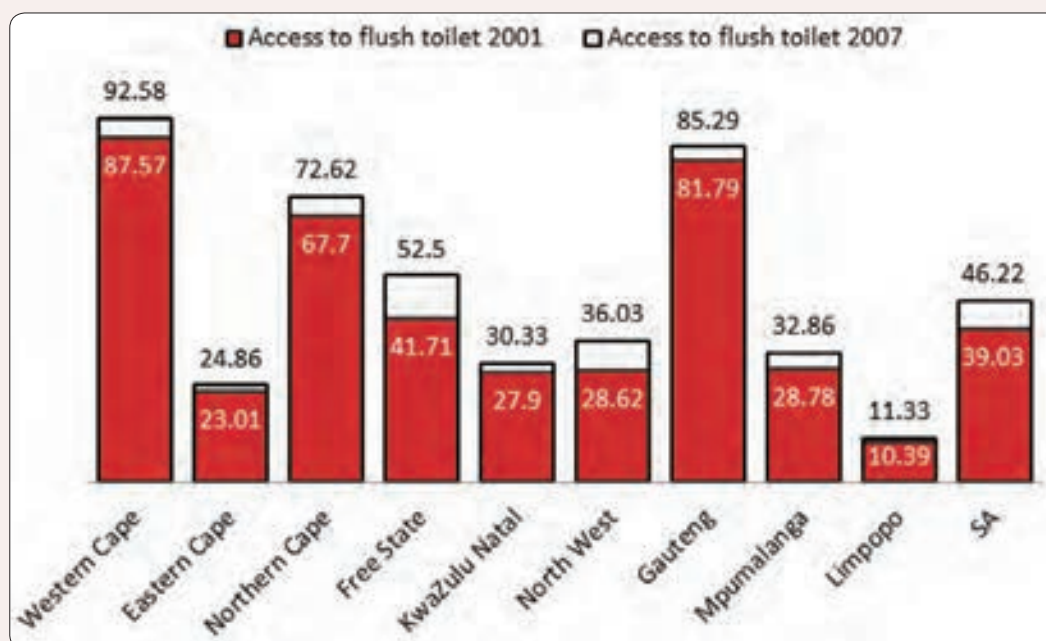
Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Not listed 58 cluster variables, other dummy variables.

While poor households grow faster on average, there are some preconditions that are necessary to start a process of convergence that might not be fulfilled in all rural areas. Moving to other communities or having some migrants in the households seems to be another possibility to leave the poverty trap (if the households have the necessary funds). Another explanation for the positive location effect may be the fact that there are significant differences in growth within different regions. Therefore, only regions with a minimum level of infrastructure and a connection to the main economic centres could provide a positive welfare change after the political transformation (attract enough firms for employment possibilities).

3.3.2 Health and education profile by province

Census 2001 and Community Survey 2007 do not shed much light on the short-term or long-term health of children (other than asking questions related to disability and how many children were born alive in 2001), but offers some insight into the risk factors associated with poor health.

Figure 3.9: Percentage of children with access to a flush toilet 2001 and 2007



Notes: Own calculations using Census 2001 and Community Survey 2007.

* Numbers in white show 2001 values while numbers in black show 2007 values.

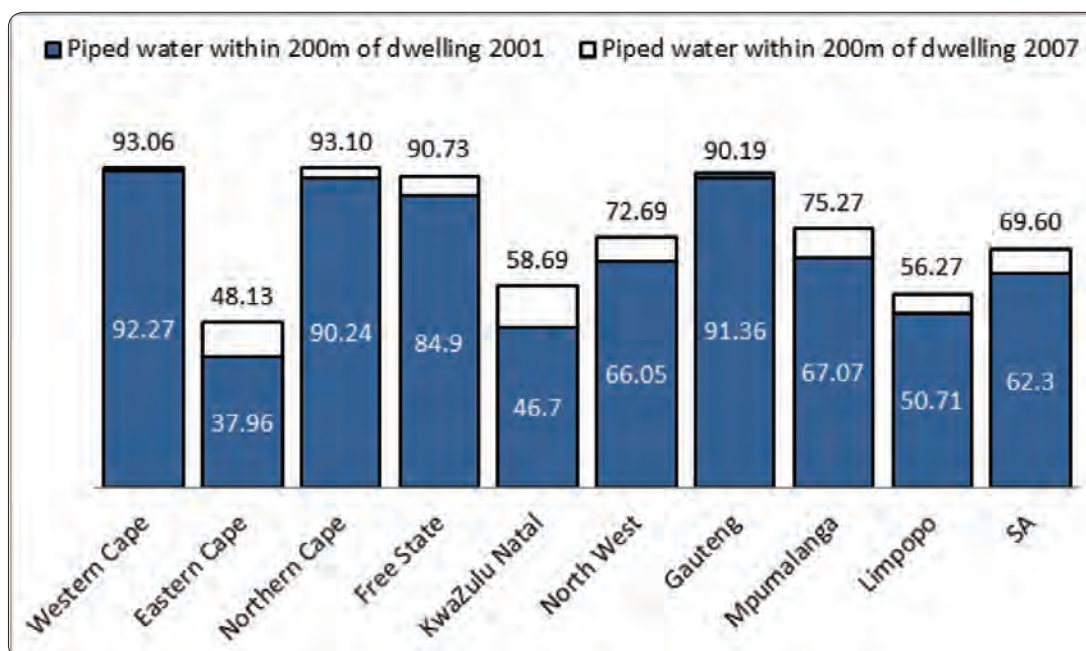
Despite minor improvements in access to flush toilets between 2001 and 2007, there are marked differences between provinces in terms of children's access to quality sanitation. Sewage which is not disposed of immediately

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or reliably presents substantial risks to children's health, particularly where communal sanitation facilities are used. This, combined with poor access to clean water, is one of the main contributors to diarrhoeal disease and is responsible for approximately 4% of deaths globally and 5% of disability due to illness (World Health Organisation, 2013).

Having piped water within 200m of a residence not only reduces susceptibility to waterborne disease, but also saves households time they would have spent traversing great distances at considerable personal risk to fetch water. Figure 3.10 shows the improvement in access to piped water between 2001 and 2007 by province. While children residing in affluent provinces have almost universal access to piped water close to their homes, more than 40% of children living in poorer provinces such as the Eastern Cape, Kwazulu-Natal and Limpopo do not get water from a piped source within 200 metres of their homes.

Figure 3.10: Percentage of children with access to piped water from a tap within 200m of the household



Notes: Own calculations using Census 2001 and Community Survey 2007.

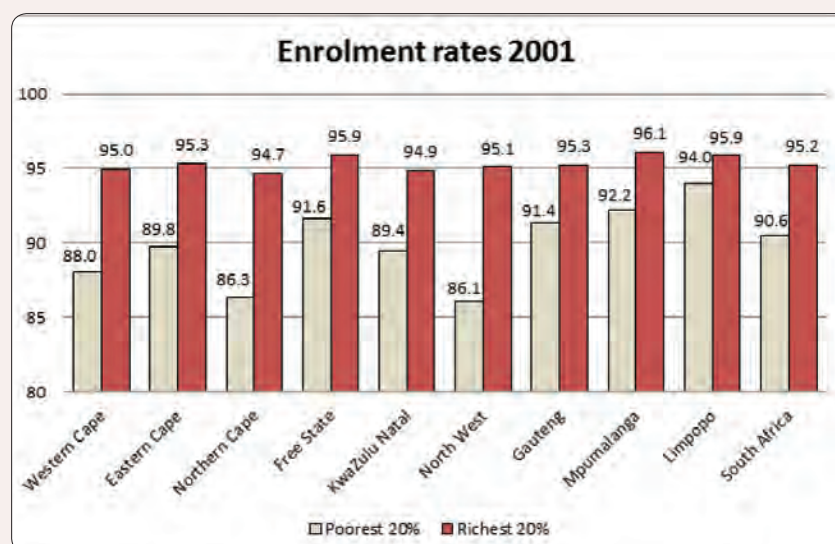
* Numbers in white show 2001 values while numbers in black show 2007 values.

Another channel through which child health can be affected is through indoor air pollution, particularly amongst the poor. Quite often economic necessity dictated the use of biofuels for cooking and heating which is particularly toxic in the small, poorly ventilated homes of the poor. Children's exposure to toxins (such as carbon monoxide, particulate matter and other organic compounds) as a result of burning biofuels are reduced somewhat by attending school, but vacation time and cold conditions in winter often lead to prolonged exposure which in turn leads to acute and sometimes chronic respiratory illness such as pneumonia. Of particular concern are those children not attending

school who follow their caregivers around during the day and are exposed to much of the pollution emanating from cooking and heating fires. Barnes et al.(2009: 11) find that South African children who are exposed to polluting fuels within the household as a primary source of energy (such as wood, dung or paraffin) are up to four times as likely to develop acute lower respiratory tract illness than those living in households with electricity. Illness, poor access to health services and poor supportive conditions in the home also significantly raise the probability of death from respiratory illness, with 14% of deaths amongst children under five years old being attributable to indoor air pollution in South Africa Barnes et al. (2009).

Access to education in South Africa differs only slightly between rich and poor households. Figures 3.11 and 3.12 below show the school enrolment rates by province for children aged 7 to 17 years living in the poorest and richest households⁸⁰ in 2001 and 2007. In 2001 there were still differences in the enrolment rates between children living in poor households and those living in rich households. Just over 95% of South African children living in rich households were enrolled in school while the comparable figure for children living in poor households was just under 91%. Decomposition by province reveals that poor children living in the Western Cape, a relatively affluent province, in 2001 had enrolment rates similar to and lower than their poor counterparts in much poorer provinces. This is some indication of how social exclusion of the poor can still occur despite favourable geographical location.

Figure 3.11: School enrolment rates by province 2001: poorest and richest households



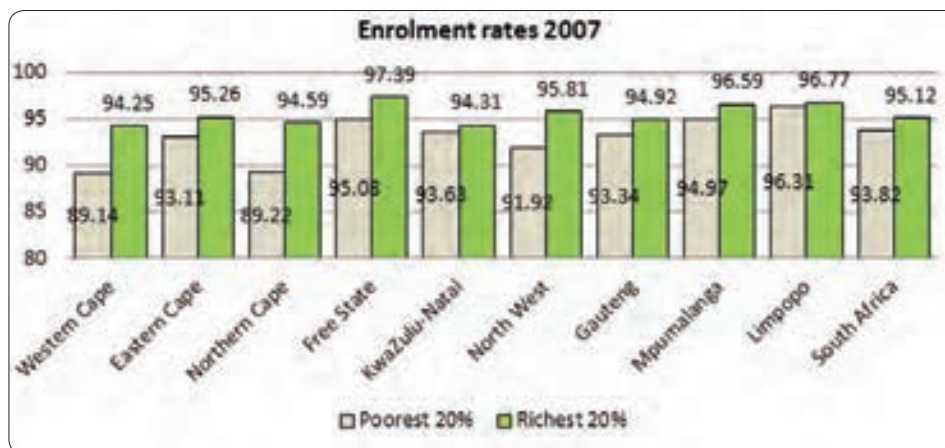
Notes: Own calculations using Census and Community Survey 2007.

By 2007 (shown below in Figure 3.12) differences in enrolment rates between children in poor and rich households had narrowed significantly, with only a 1.3 percentage point difference in enrolment rates between the two groups at the national level (compared to a 4.7 percentage point difference in 2001). While the near equivalence of enrolment rates between the poor and non-poor is encouraging, this does not necessarily imply access to education of uniform quality for these two groups. Rather, there is some recent evidence to suggest that geography matters to some

⁸⁰ The terms 'poorest' and 'richest' 20% are based on national distributions of income.

degree in terms of education offered in South Africa. Gustafsson and Taylor (2013) examine the impact of the 2005 provincial boundary changes on mathematics results in 158 schools in South Africa between 2005 and 2012.

Figure 3.12: School enrolment rates by province 2007: poorest and richest households



Notes: Own calculations using Census and Community Survey 2007.

They find that those schools that switched boundaries from North West to Gauteng⁸¹ saw more dramatic improvements in their average school matric marks than those North West schools which had not switched boundaries. The authors allude to more efficient spending of budgets in Gauteng (schools in the North West had similar or higher levels of spending per pupil in the period under review), better management of time and human resources and district offices being more proactive in overseeing schools.

The geographical concentration of poverty and poor access to services in present-day South Africa is inextricably linked to the centrally imposed human location and relocation policies under pre-1994 governments. Under apartheid black Africans not born in urban residential areas were denied the right to settle there permanently, entrenching the legacy of migrant worker arrangements where workers in towns were temporary migrants with families in the homelands. The geographical segregation policies were particularly gender-biased against black women, who were refused urban residential permits unless they were married to an employed person or employed themselves. The homelands, which were indirectly ruled by handpicked leaders (Makgetla, 2010: 18) (Makgetla, 2008: 18), endured severe underinvestment in economic infrastructure which, coupled with poor quality of education and poor access to market institutions, condemned many of the inhabitants of these areas to multiple equilibrium traps. Although migration may provide some families a means of escaping poverty, the human capital flight accompanying it contributes to the persistence of poverty-creating factors in the sending regions. It is with this context in mind that the post-1994 government's policies have been geared towards the development of South Africa's marginalised

⁸¹Data constraints compel them to only consider 29 schools which 'migrated' from North West to Gauteng.

3.3.3 Policy responses to the geographic concentration of poverty

Between 1994 and 2009, government focused on four key areas to be addressed to develop South Africa's rural areas:

1. Redesigning local government in the former homeland areas and commercial farming regions
2. Facilitating resource shifts to rural areas to increase access to government services and grants
3. Land reform coupled with support from government and commercial agriculture to support the development of emerging black farmers
4. Protecting farm worker rights

The restructuring of local government in rural areas

Under apartheid the former homelands and farming regions⁸² either did not have democratically elected local governments or they had no local government at all. After 1994, along with newly implemented borders, new municipalities were established to oversee areas not previously under local government to ensure effective governance and accountability in these areas. These new municipalities faced a number of serious challenges, foremost being the serious backlogs in municipal infrastructure and service delivery due to systematic underinvestment in the former homelands under apartheid rule. The new dispensation now made rural municipalities (which also had low levels of revenue due to high levels of poverty amongst its inhabitants) responsible for the provision of water, electricity, sanitation and refuse removal. In addition, these municipalities were quite often unable to retain skills and were frequently understaffed (Makgetla, 2010: 39). Although the establishment of administrative authorities in these areas was a good first step towards improving accountability in these previously neglected areas, the challenge of attracting and retaining local government skills to maintain the growth in service delivery coverage and improve its quality is one which has not been successfully addressed.

Resource shifts to rural areas

After 1994 government made concerted efforts to ensure an equitable allocation of government services and revenue amongst its municipalities, resulting in substantial improvements in the access to municipal services and grants (in particular the old-age pension and child support grants) in previously neglected areas. Nonetheless, although living conditions in the former homelands had improved somewhat between 1994 and 2007, the improvements had not transformed these regions in terms of economic activity. Many individuals in these regions remained dependent on government assistance, in no small part due to a confluence of their relative regional unattractiveness to investors, low education levels, an underdeveloped agricultural sector and the cumulative influence of these and other factors such as systematic government underinvestment and inefficiency for the better part of the last century.

However, differentials in service delivery between municipalities in more rural and more urban provinces are still quite large and persistent, possibly contributing to the pronounced increases in migration to more affluent provinces since 1994. Urban-rural differences in crucial service delivery areas such as education and health still prevail (as

⁸² Only Whites were allowed to vote in farming regions which had local governments,

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discussed elsewhere in this document), rendering government transfers to rural areas effective only in improving living conditions to some degree, but not assisting regions to access a higher economic growth path.

Encouragingly, the targeting of the grant system has improved dramatically in the post-apartheid period. Pienaar and Von Fintel (2013) show that government grants have usurped remittances as the most important contributor to household income in the former homelands (more than R1000 on average in grants per household compared to R214 per household). Social grants, particularly the old-age grant, have proved to be instrumental in alleviating hunger in rural households.

Land reform

In the lead up to the 1994 election the African National Congress proposed that rural development would be underpinned by strong land reform policies which aimed to transfer 30% of commercial farm land to the poorest rural inhabitants and aspirant farmers for the purposes of production and habitation by 1999 (African National Congress, 1994). After the election, the newly elected government introduced three programmes under the land reform umbrella: (1) restitution of land to communities who had been evicted from legally held land under apartheid; (2) redistribution of commercial farming land to black farmers to increase participation of the poor in the agricultural sector and (3) the adoption of the Agricultural Broad-Based Black Economic Empowerment Charter which focused on access to existing infrastructure, inputs and knowledge for emerging farmers.

The programmes were not as successful as anticipated for a number of reasons related to the complexity of the land reform process. An example of the complexity involved was that only those individuals who could prove that they were unambiguously evicted from land for racial reasons could claim restitution. The problem lay in the fact that for many individuals it was difficult to single out a particular event which led to them being detached from land previously held, thus negating any possible claims they may have had. The 'willing buyer, willing seller' stance adopted by the government also attracted much criticism for its failure to prevent speculation and increasing land prices in response to government's willingness to pay the market price for land, and for the lack of public participation in the implementation of land reform in South Africa (Lahiff, 2008). The collective ownership models favoured by government have also been inappropriate in many instances, with little regard for particular situations and a predilection to advocate business plans which are more appropriate for conventional commercial farming (Lahiff et al., 2008). The low returns to investment in agriculture for small farmers, poor post-settlement support from government, the inability to meet land reform targets, and the question of whether redistribution in the agricultural industry is sustainable, have led some to question the decision to invest heavily in land reform in a country where the sector's performance relative to other sectors is on the wane (Walker, 2005: 834). Although there have been some land reform success stories (for example, in the Western Cape where farmworkers now have a stake in the land they work), the distribution of land ownership is still far from desirable, with agriculture still being dominated by very few, large capital-intensive enterprises.

The pace of agricultural transformation, and by extension, rural development is likely to remain slow in the near future. To date the benefits of land reform to small-scale farmers in the former homelands have been negligible. Pienaar and von Fintel (2013: 13) assert that on average households in the former homelands who had access to farming land derived 49% of their household income from government grants, while salaries and remittances contributed 24% and 16% of household income respectively. The finding highlights the plight of rural small-scale

farming in the former homelands and perhaps serves as an indication that escaping poverty through education is the strategy on which households and government should place most emphasis. It is with this recognition that the following section of this chapter focuses on what is arguably the most important mechanism to escape poverty, the South African education system.

3.4 EDUCATION: THE CASE OF INSURMOUNTABLE LEARNING DEFICITS IN SOUTH AFRICA

While the findings of management inefficiencies within the South African education system mentioned above highlight clear opportunities for improvement, an examination of the system's output – the education of children – raises much cause for concern. Section 3.2 showed that households with higher levels of education display higher incomes. Section 3.3 indicated that schools in different districts may deliver qualitatively different education services – as measured by assessment scores. The depth of educational deficiencies between affluent and poor children in South Africa is discussed in this section. The theme emphasising the importance of early roots for later life outcomes continues by showing that learning deficits incurred in lower grades accumulate and become magnified as children advance through school. This follows from the theory that mastery of the skills which are essential for economic success and personal development follows hierarchical rules (Knudsen et al., 2006). That is, the earlier mastery of certain cognitive, social and emotional capabilities helps to foster more efficient learning at later ages.

This theory has considerable empirical support, with numerous studies finding early numeracy skills to be good predictors of later mathematics performance (Aubrey and Godfrey, 2003; Aubrey, Dahl and Godfrey, 2006; Aunio and Niemivirta, 2010). Counting skills, in particular, have been shown to estimate basic arithmetic skills in the early grades of primary school relatively accurately (Aunola et al., 2004; Jordan et al., 2007; Desoete et al., 2009).

3.4.1 Determining the extent of learning deficits

In order to construct the learning trajectories of South African children, it is necessary to have objective measures of achievement at multiple points in the education system. The present analysis uses three data sets which cover five grades from Grade 3 to Grade 9. The data are drawn from the National School Effectiveness Study (NSES) for grades three (2007), four (2008) and five (2009); from the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) 2007 for Grade 6; and from the Trends in International Mathematics and Science Study (TIMSS) 2011 for Grade 9. Using these sources, it is possible to undertake an inter-temporal analysis of learning deficits among children in South Africa and determine how these vary depending on the socio-economic status.

The discussion begins with learning deficits using the Grade 3 Systemic Evaluation mathematics test. The Grade 3 Systemic Evaluation mathematics test consisted of 53 questions which varied according to the nature of the mathematics task, the difficulty level of items, whether the item was in verbal or symbolic form, and whether the item was multiple choice or free response (Taylor and Taylor, 2013). Included in the meta-data for the Systemic Evaluation is a series of background classification information, identifying the learning area and grade-level of each item in accordance with the prevailing curriculum, the National Curriculum Statement (NCS). Of the 53 questions in the test, three are set at a Grade 1 level, 14 at a Grade 2 level, 30 at a Grade 3 level, and six at a Grade 4 level. Using this information, the average numeracy score is calculated for each child using only the subset of 30 Grade-3

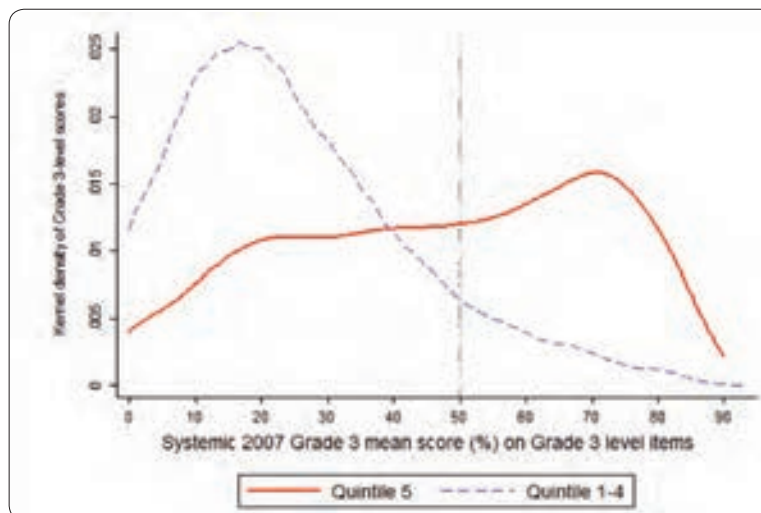
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level questions. The reason for this sub-classification is to calculate the proportion of students that are performing at the grade-appropriate level. Following Muralidharan & Zieleniak (2013), students are classified as performing at the grade-appropriate level if they obtain a mean score of 50% or higher on the full set of Grade 3 level questions.

Figure 3.13 below shows the distribution of mean Grade 3 performance on Grade 3 level items disaggregated by quintile of student socioeconomic status into the wealthiest 20% of students (Quintile 5) and the poorest 80% of students (Quintiles 1-4). All students achieving a mean score of 50% or higher can be said to be performing at the grade-appropriate level. The graph reveals the dire situation in South African schools with the vast majority (88%) of Quintile 1 – 4 students in Grade 3 not performing at the grade-appropriate level. The majority of Quintile 1-4 students are concentrated around the 20% performance mark, at one and a half standard deviations (30 percentage points) below the 50% threshold. Although Quintile 5 students perform much better than their poorer counterparts, only slightly more than half (51%) are performing at the grade-appropriate level.

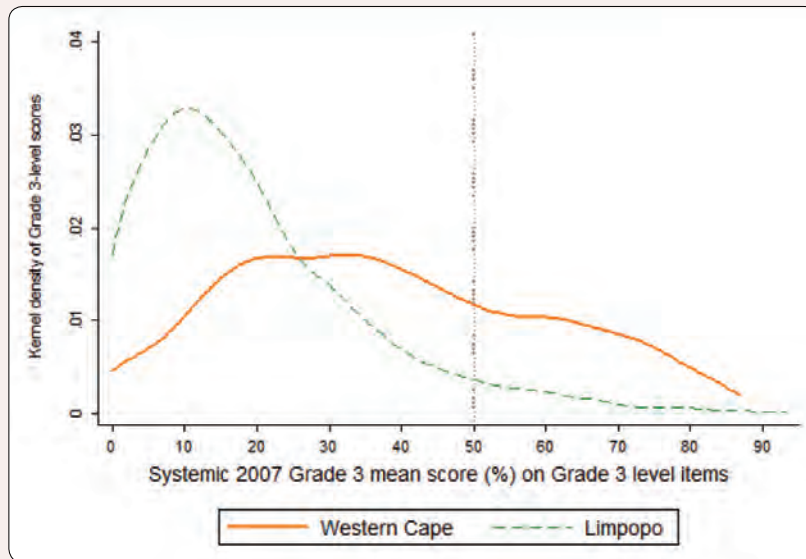
Figure 3.13 below shows the stark contrast in curriculum mastery between students from wealthy backgrounds and those from poorer backgrounds. However, given that socioeconomic status and geographical location are also strongly correlated in South Africa, these inequalities extend also to provincial inequalities, as Figure 3.14 and Figure 3.15 display below. Students in Gauteng and the Western Cape, have a much higher probability of performing at the grade-appropriate level, than their peers living in either KwaZulu-Natal or Limpopo. Only one in twenty (6%) children enrolled in Grade 3 in Limpopo are performing at a Grade 3 level, in contrast to one in three (32%) in the Western Cape.

Figure 3.13: Kernel Density of Mean Grade 3 Performance on Grade 3 Level Items by Quintiles of Student Socioeconomic Status



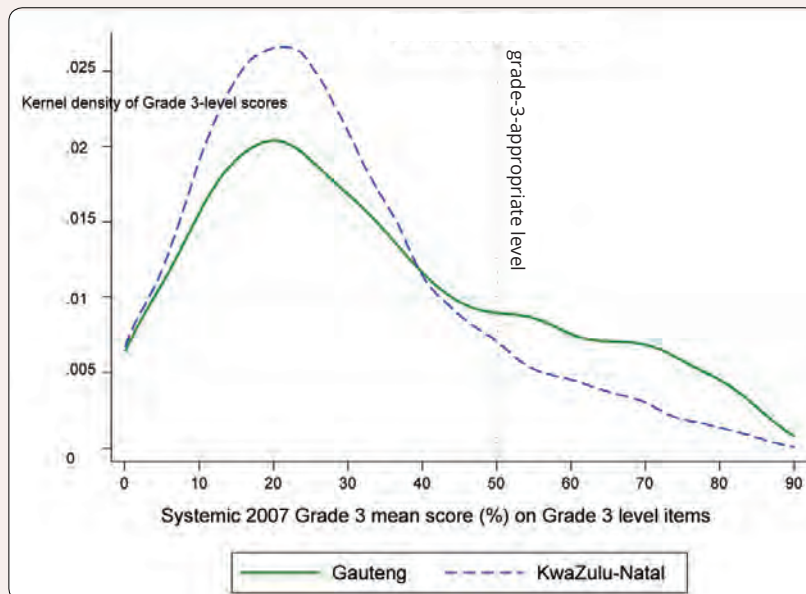
Notes: Own calculations using Systemic Evaluation 2007.

Figure 3.14: Kernel Density of Mean Grade 3 Performance on Grade 3 Level Items by Province



Notes: Own calculations using Systemic Evaluation 2007.

Figure 3.15: Kernel Density of Mean Grade 3 Performance on Grade 3 Level Items by Province



Notes: Own calculations using Systemic Evaluation 2007.

Table 3.12: Proportion of Grade 3 students performing at the Grade 3 level by province and student socioeconomic quintile, Systemic Evaluation 2007

Province	Proportion of Grade 3 students performing at the appropriate Grade 3 level*	Quintile	Proportion of Grade 3 students performing at the appropriate Grade 3 level*
Eastern cape	17%	Quintile 1	10%
Free State	25%	Quintile 2	10%
Gauteng	26%	Quintile 3	12%
KwaZulu-Natal	13%	Quintile 4	29%
Limpopo	6%	Quintile 1-4	11%
Mpumalanga	11%	Quintile 5	51%
North West Province	10%		
Northern Cape	17%		
Western Cape	32%		
South Africa	16%		

* Students are classified as performing at the grade-appropriate level if they obtain a mean score of 50% or higher on the full set of Grade 3 level questions

If one looks at the country as a whole, less than one in five (16%) Grade 3 students are performing at the Grade 3 level⁸³.

It is evident that by Grade 3 there already exist large learning deficits such that the vast majority of South African students are well behind the curriculum. However, the origin of these learning deficits is less clear. Without longitudinal data on student achievement which covers the period before and during primary school, one cannot determine the source of these deficits, i.e. are they primarily due to disabling home backgrounds, weak early childhood development, or weak instruction in Grades 1, 2 and 3? Although this question cannot be answered with the data available in South Africa, another important and related question can be answered: whether learning deficits grow, shrink or remain constant as students progress through the schooling system. To answer this question one needs to look at surveys of student performance at multiple points in the education system⁸⁴.

3.4.2. Eliminating 'language bias' in estimates of learning deficits

This part of the report aims to measure learning that occurs as students advance through grades and compare the learning trajectories of students with different SES. The NSES tested a cohort of students for three consecutive

⁸³ Importantly, these Systemic assessments were conducted in the language of learning and teaching (LOLT) of the school in Grade 3, i.e. before any switch to English in Grade 4.

⁸⁴ Some cautionary notes on interpreting these results appear in Appendix 3B.

years (students were in Grade 3 in the first testing year) and administered the same literacy and numeracy test in each year, thus serving as a useful data source for estimating a crude measure of learning over time. Given that children are not taught in English during the first three grades, only results from the numeracy test are considered for deriving the estimate of learning deficits. There remains, however, a potential for bias in the estimate since all NSES tests were conducted in English – which is neither the first language of most students nor is it the language of teaching in Grade 3 for students who are not English first language speakers. This means that students’ ability to answer numeracy questions will depend not only on their mathematics competency but also on their English fluency when facing instructions that are presented in English. In order to mitigate this problem, a subset of numeracy questions that bore no language content (these are referred to as no-language items) was considered when deriving comparisons of assessment outcomes among students.

Figure 3.16 below shows that only 8% of Grade 3 students from Quintile 1-4 were performing at the Grade 3 level according to these nine items. By contrast, 35% of Quintile 5 students were performing at the grade appropriate level. Figure 3.17 shows that by Grade 5 this figure has increased substantially to 26% for Quintiles 1-4 and 55% for Quintile 5 students. It is disconcerting to note that only one in four (26%) Grade five students from Quintile 1-4 were proficient at a Grade three level in 2009, and furthermore that 45% of the wealthiest students (Quintile 5) are still not proficient at a Grade 3 level mathematics by the end of Grade 5.

Figure 3.16: NSES Grade 3 performance on No-Language Items by Quintile of Student Socioeconomic Status

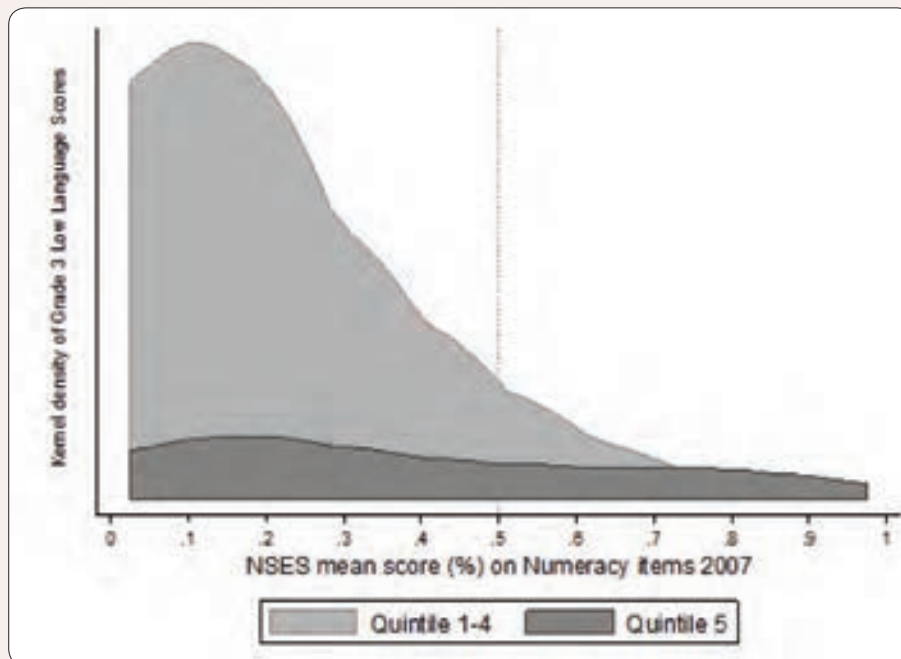
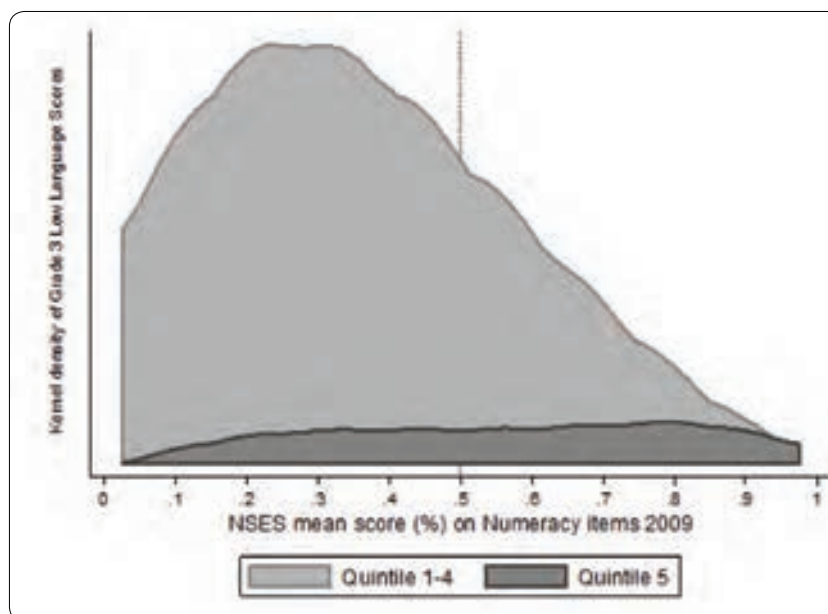


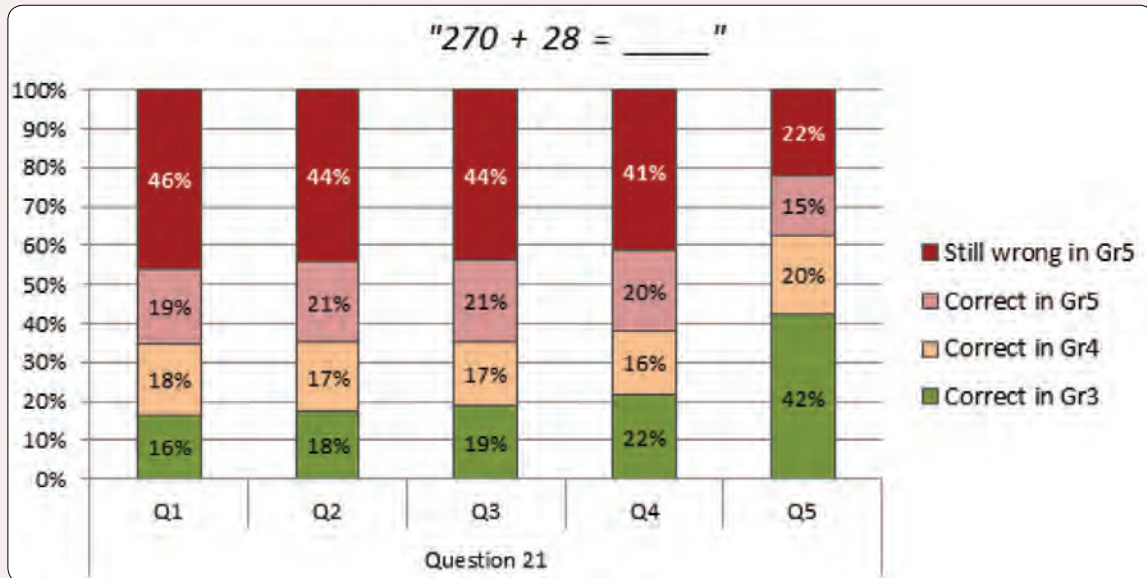
Figure 3.17: NSES Grade 5 performance by Quintile of Student Socioeconomic Status



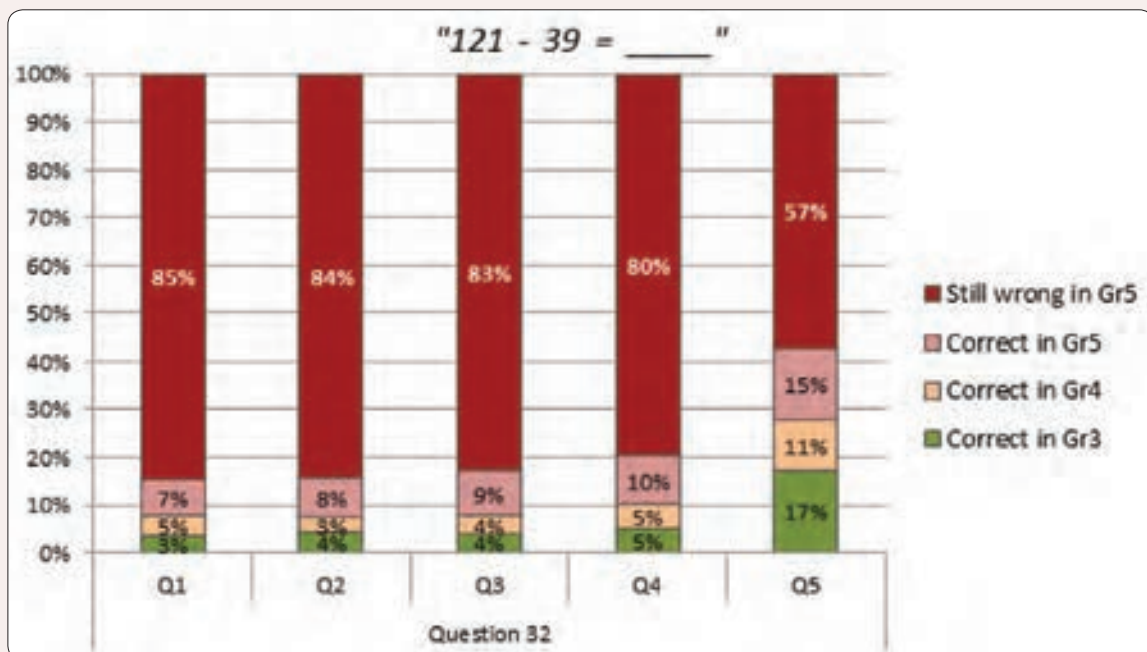
The above graphs illustrate that the majority of South African children are underperforming relative to the grade-appropriate curriculum. However, such aggregated measures make it difficult to appreciate just how low the levels of performance really are, and how little learning occurs over the three years from Grade 3 to 5. To provide an alternative measure of performance, two examples of no-language items in NSES are provided in Figures 3.18 and 3.19 below and it is shown when (if ever) students answer the question correctly. Given that one needs to follow the same students from Grade 3 to 5 the sample is limited here to the panel sample of NSES students (8383 students). Figure 3.18 below shows a simple question testing two and three digit addition with no carrying. This is within the Grade 3 curriculum which states that students should be able to “perform calculations using the appropriate symbols to solve problems involving addition of whole numbers with at least three digits.” Although this is a Grade 3 level item and contains no language, only 20% of Quintile 1-4 students could answer this correctly in Grade 3, with the proportion in Quintile 5 being twice as high (42%) but still low. In contrast to some of the other items where there is virtually no learning between Grades 3, 4 and 5 (for example Figure 3.19), it is positive to note that a significant number of children who could not answer Question 21 correctly in Grade 3 learned the skill in either Grade 4 or Grade 5. Notwithstanding the above, more than 40% of Quintile 1-4 children still could not answer this Grade 3 level problem at the end of Grade 5. In Quintile 5 this figure was only 22%.

It is important to remember that while the NSES mathematics test (set at the Grade 3 level) was the same in Grades 3, 4 and 5, the expectations of the curriculum in each year proceeded unhindered by the fact that most children still had not acquired the necessary foundational skills in the previous grade. The growing disconnect between the real mathematics proficiency of students relative to the expectations of the curriculum mean that students fall further and further behind even while they proceed to higher grades.

**Figure 3.18: National School Effectiveness Study by quintile of student socioeconomic status
NSES Question 21 - example of item testing addition**



**Figure 3.19: National School Effectiveness Study by quintile of student socioeconomic status
NSES Question 32 - example of item testing subtraction**



3.4.3 Moving from learning deficits to learning trajectories

While the previous sections have identified the proportion of students who are not operating at a Grade 3 level, they do not provide much guidance in terms of learning trajectories into later grades. The figures above show that some students are only learning part of the Grade 3 curriculum in either Grade 4 or Grade 5 and that many never seem to acquire these skills. In this section the average performance of quintile five students in each of the following three assessments is calculated: NSES⁸⁵ 2007/8/9 for Grades 3, 4 and 5; SACMEQ 2007 for Grade 6; and TIMSS 2011 for Grade 9. This level of performance is then used as the reference category and other levels of performance (quintile and province) are compared to these within-survey benchmarks. The Quintile 5 average is set to be equal to the 'grade-appropriate level' and all other levels of performance relative are compared to this Quintile 5 average. It is important to note that this is necessarily a lower-bound estimate of curriculum mastery or grade-appropriate performance since some Quintile 5 students will not be performing at the Grade appropriate level. The preceding analysis of the Systemic Evaluation 2007 and NSES 2007/8/9 has shown that this is in fact the case – many Quintile 5 students are performing well below the expectations of the curriculum. Notwithstanding the above, this is still a useful benchmark against which to compare other sub-groups.

By using all three data sets (NSES, SACMEQ and TIMSS), it is possible to calculate the difference in scores between the average Quintile 5 student and the average student in a particular sub-group, say Quintile 1. However, given that each of the three surveys uses a different metric to measure student performance it is difficult to use raw survey-specific scores to make comparisons across grades. For example the difference in average achievement between Quintiles 1 and 5 is 28 percentage points in NSES Grade 3, 130 SACMEQ points in Grade 6, and 122 TIMSS points in Grade 9. These different metrics are not directly comparable and there is no simple way of equating⁸⁶ the scores. To overcome this comparability problem, the within-survey national standard deviation of South Africa is used as a unit of measurement. Given that the standard deviation is not a function of the specific unit of measurement (like SACMEQ points or TIMSS points) but rather a statistic describing the distribution of performance, it is possible to compare differences in student achievement across surveys that are otherwise not comparable. To use the previous example, the differences between the average performance of Quintile 1 and Quintile 5 in Grade 3 (NSES), Grade 6 (SACMEQ) and Grade 9 (TIMSS) are 1.2 standard deviations, 1.3 standard deviations, and 1.4 standard deviations respectively. Clearly the latter is more helpful given that they are all expressed in the same metric – standard deviations.

One can go further and convert these standard deviation differences into grade-level differences, as has been done in other countries. Using seven nationally normed tests of student reading and mathematics achievement, Hill et al.(2007: 172) compare the annual learning gain per grade for American students from Grade K – 12 in standard deviations. They find that the annual learning gains vary by grade with greater gains at earlier grades. For example, in mathematics the learning from Grade 1 to 2 was 1.03 standard deviations, from Grade 4 to 5 was 0.56 standard deviations and from Grade 8 to 9 was 0.22 standard deviations (Hill et al., 2007: 172). The average math test score gain across all seven grade levels was 0.47 standard deviations per year, which has been used elsewhere as a benchmark for one grade-level of learning (Washington State Institute for Public Policy, 2011). Unfortunately, similarly rich data sets do not exist for South Africa. The only two data sets which allow for the estimation of learning gains in South Africa are the NSES study (2007/8/9) for primary school, and TIMSS (2003) for high school. Given that NSES followed the same students over time as they moved from Grade 3 into Grades 4 and 5 and tested these students using the same test, one can estimate the amount of learning between Grades 3 and 4 as a percentage of

⁸⁵ To ensure that there are no confounding language factors, only the sub-set of 15 no-language items for the NSES Grade 3, 4 and 5 scores is used.

⁸⁶ Gustafsson (2012) presents a nonlinear programming approach to normalising test scores. However, if employed here this would only facilitate the direct comparison of SACMEQ and TIMSS, but not NSES. This is because South Africa was the only country to participate in NSES and thus there are no bridging countries which are needed for that method.

the average standard deviation between the two years. One can also calculate the learning gains between Grade 4 and 5 using NSES although these are likely to be biased given that the NSES test was set at the Grade 3 level. When using the NSES numeracy tests to calculate learning gains there are two important caveats: firstly, one should use only those items that have no language content in them to ensure that the gains are due to increased numeracy proficiency rather than increased language proficiency (as discussed above), and secondly, the results of the analysis are likely to be different based on whether one uses the panel sample (i.e. only those who can be followed across all years), or the full sample (i.e. all students in each grade). Table 3.13 below reports the average numeracy score for Grade 3, 4 and 5 as well as the learning gains (both in percentage points and as a percentage of the average standard deviation between the two years) for both the full numeracy test and the sub-set of 15 no-language items. As a robustness check, scores are imputed for those Grade 3 children who could not be found in the Grade 4 and Grade 5 NSES sample either due to dropout, moving or grade repetition.

Table 3.13: Measurement of Learning

	NSES		Percentage Points			Gain as %SD	
			Grade 3	Grade 4	Grade 5		Gains
Full numeracy test	Panel sample	Gr3 - Gr4	29.38	35.5		6.12	0.28
		Gr4 - Gr5		35.5	47.04	11.54	0.54
	Full sample	Gr3 - Gr4	20.22	27.88		7.66	0.38
		Gr4 - Gr5		27.88	39.66	11.78	0.58
	Full sample - imputed	Gr3 - Gr4	25.85	32.33		6.48	0.31
		Gr4 - Gr5		32.33	44.16	11.84	0.61
Sub-set of 15 no-language items only	Panel sample	Gr3 - Gr4	27.64	34.53		6.88	0.28
		Gr4 - Gr5		34.53	40.99	6.46	0.43
	Full sample	Gr3 - Gr4	17.92	26.47		8.54	0.38
		Gr4 - Gr5		26.47	38.84	12.38	0.52
	Full sample - imputed	Gr3 - Gr4	23.78	31.43		7.65	0.33
		Gr4 - Gr5		31.43	42.81	11.37	0.52
	TIMSS		Standardized TIMSS Points			Gain as %SD	
		Grade 8	Grade 9		Gains		
	Full sample	Gr8 - Gr9	264	285		21	0.2

While the NSES is helpful to estimate the amount of learning per grade in Grade 3, the best data set to calculate the amount of learning at a higher grade is TIMSS 2003. In TIMSS 2003 the principal investigators decided to test both Grade 8 students and Grade 9 students using the same Grade 8 test. This was out of a concern that the TIMSS Grade 8 test was too difficult for South African Grade 8 students and thus that future administrations of TIMSS may be done at the Grade 9 level and would need a baseline for comparability. This is in fact what happened in TIMSS 2011 when only Grade 9 students were tested using the Grade 8 test. By comparing the average TIMSS score of Grade 8 and 9 students (from the same schools) on the same test and calculating this as a percentage of the South African TIMSS standard deviation, one can get an estimate of the amount of learning in one grade at the high school level.

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While it would be ideal to follow the same students from Grade 8 to Grade 9 (as NSES did between Grades 3, 4 and 5), this has not been done before in South Africa and thus the best estimate available is that of TIMSS 2003 Grade 8 and 9 students on the same test.⁸⁷

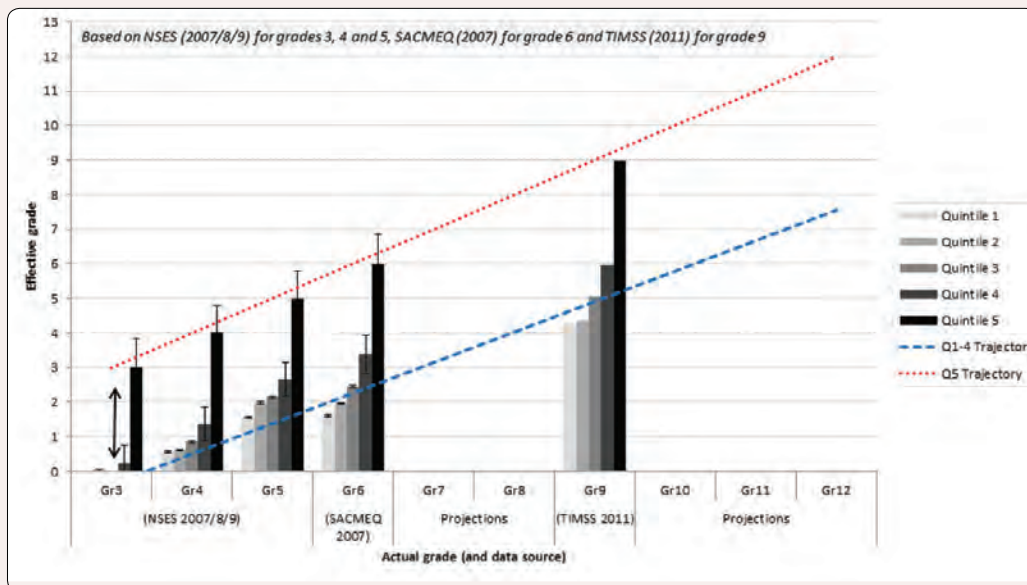
To illustrate the above, the average Quintile 5 achievement is set to be equal to the grade-appropriate benchmark such that the learning trajectory of these students are on the 'on-track' trajectory and will reach matric performing at roughly a Grade 12 level. The difference between this 'benchmark performance' and the average performance of Quintiles 1, 2, 3 and 4 is then calculated and convert into grade-level equivalents using 0.3 standard deviations as equal to one grade-level of learning. In doing so, a learning trajectory spanning Grade 3 (NSES) to Grade 9 (TIMSS) is created, with linear projections for those grades where no data exist (Grade 7, 8, 10, 11 and 12). FF 3.20 below shows the likely learning trajectories of the average student in each Quintile of student socioeconomic status. It shows that the average student in Quintile 1, 2 and 3 is functioning at approximately three grade-levels lower than the Quintile 5 benchmark in Grades 3, 4, 5 and 6. Observing average performance in Grade 9 shows that the difference between Quintile 1, 2 and 3 students and Quintile 5 students (the benchmark) has now grown to about four grade-levels. If it is assumed that Quintile 5 students in Grade 9 are functioning at roughly a Grade 9 level, then Quintile 1 and 2 students are functioning at roughly a Grade 4.5 level in Grade 9.

The trajectory lines, one for Quintile 5 and one for the average of Quintiles 1-4, show that in Grade 3 there already exist large differences in performance (approximately three grade-levels) and that by the time children enter Grade 9 this gap in performance has grown to about four grade-levels. The linear trend in performance between these two groups suggests that if the same number of students in Quintiles 1-4 in Grade 9 continued in schooling until Grade 12 (i.e. no drop out between these two periods) they would be functioning at approximately 4.5 grade levels lower than their Quintile 5 counterparts (1.4 standard deviations lower). The reason why one cannot easily use the matric data for Grade 12 as another point in the learning trajectory is the substantial number of students that drop out of schooling between Grade 9 and Grade 12. Taylor (2012: 6) shows that the average enrolment in Grades 4, 7 and 10 between 2008 and 2011 was approximately 1 000 000 in each grade, but by Grade 12 this figure drops to roughly 600 000 students. Consequently, if Grade 12 were to be included as a data point, it would be necessary to make a number of assumptions about dropout and the differential distribution of dropout across the socioeconomic spectrum. For the purposes of this report the analysis is not extended to Grade 12 by using matric data. The large inequalities between Quintile 5 and Quintiles 1-4 seen in Grades 3-9 (FF 3.21) are also evident in Grade 12, as one might expect. From the above analysis it is clear that the inequalities in learning outcomes that are evident in Grades 3, 4, 5, 6 and 9 are also evident in Grade 12.

Previous research has shown that the low quality of education in South Africa acts as a poverty trap as weak educational outcomes lead to poor labour-market prospects and hereditary poverty (Van der Berg et al., 2011). To this conclusion it can be added that the root cause of these weak educational outcomes is that children are acquiring debilitating learning deficits early on in their schooling careers and that these deficits remain with them and grow over time. Because they do not master elementary numeracy and literacy skills in the foundation and intermediate phases, these children are held back from further learning and engaging fully with the grade-appropriate curriculum.

⁸⁷ One positive element of the comparison is that the Grade 8 and 9 students were drawn from the same schools in TIMSS 2003 which increases the comparability of the Grade 8 and 9 results.

Figure 3.20: Mathematics learning trajectories



3.5 CONCLUSION

Applying the framework developed by Carter and May (2001) to three waves of the NIDS data reveals that 39% of South African children reside in households that are structurally poor. These are households lacking the necessary assets, broadly defined, to escape their circumstances and lift themselves into a non-poor status. The factors closely associated to maintaining their deprivation include low levels of education – an average household education level lower than 7 years; and unfavourable geographic location – more than 70% of the structurally poor reside in three provinces. The poor also report lower levels of happiness and optimism, which in turn may lower aspirations and lead to a cycle of low investment in human capital in the face of an insurmountable impasse to a prosperous future. While geographic location has no bearing on access to education, the quality of education provided does differ by location, as does access to basic services such as water and sanitation. While education is often promoted as the most important mechanism in escaping poverty, there is concern that the South African education system is failing to provide education of a standard required to make use of this pathway. An estimation of the current level of learning deficits show that they are evident in the early years and accumulate as children progress through school. These findings present a crucial challenge to improve the quality of education in order to promote social mobility in South African society.

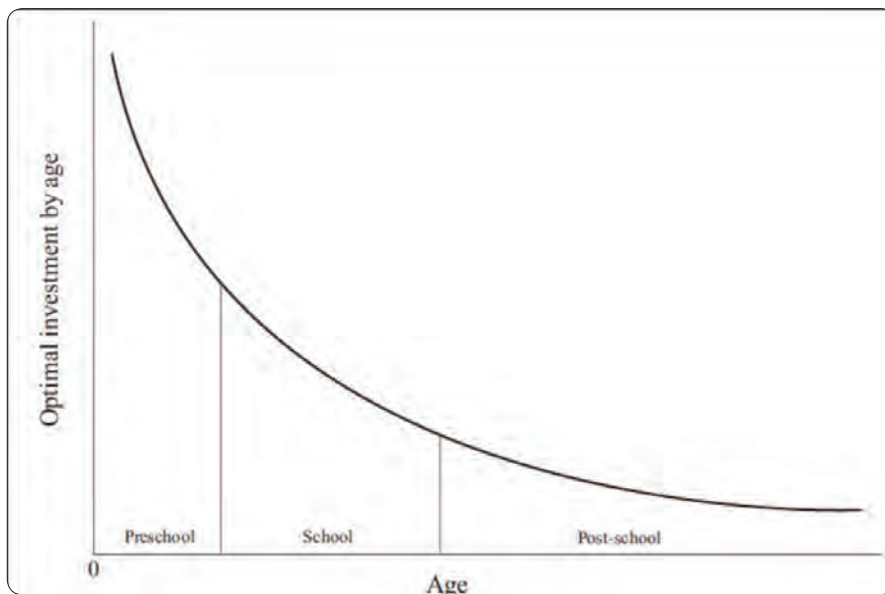
The emphasis on geography and education in this chapter should not imply that other mechanisms such as health and social exclusion are unimportant to explaining poverty traps in South Africa or that policy recommendations cannot be conceived in these areas. These are important areas that require further research and more rigorous analysis (than is undertaken in Chapter 2 of this report) and where improvements are likely to make a difference in the lives of the poor. The constraints of available data and resources preclude such an undertaking in this report, which therefore emphasises the roles of education and geographic factors, as two areas where improvements could positively affect the welfare of many poor South Africans.

POLICY EXPERIMENTS

4.1 POLICY RESPONSES TO ALLEVIATE POVERTY TRAPS

There are many reasons for supporting policy interventions aimed at alleviating child poverty. As stated by Cunha et al. (2005) and Hulme and Shepherd (2003), there are good equity and efficiency grounds for interventions directed at children specifically. These pro-poor policies go further than creating a more equitable society, and by increasing opportunities for a larger share of people, contribute directly to economic growth. The preceding chapters highlighted specific target areas where interventions, by focusing on child outcomes, can be effective in breaking the cycle of intergenerational poverty. In particular, they presented findings showing that under-investment in child health, nutrition and education reduces their developmental potential, thereby narrowing their chances of escaping poverty within their own lifetimes. Policies aimed at reducing long-term deprivation are therefore likely to be most potent if they are targeted at the young. This conceptual viewpoint is captured in Figure 4.1 below, which shows the rate of return to human capital over the life-course.

Figure 4.1: Optimal investment in human capital



Taken from Cunha et al. (2005)

It is worth reflecting on the implications of the curve depicted above, which bears two important features. Firstly, it is downward sloping indicating that the rate of return to investments in human capital is greater when they are undertaken on children of younger ages. The implication is clear; policy aimed at removing poverty traps must intervene at the early stages of the lifecycle. The second feature of the curve worth noting is that it does not intersect the age axis. This suggests that even in later years there are positive returns to investment in human capital. Adverse socioeconomic conditions may scar children and secure for them a path to poor life outcomes, but children are resilient, and while any adverse conditions suffered during early-life will have enduring consequences, remedial interventions have been shown to be effective (Crookston et al., 2010). Non-cognitive skills, which are

important contributors to labour market success and earnings, are particularly malleable in later stages of human development. Thus it should be appreciated that early intervention, though yielding higher returns, should not preclude remedial programmes that target adolescents and youth, but that interventions in both stages should rather be viewed as complementary.

In addition to recognising early childhood development as an important policy target for interrupting poverty traps, multiple other considerations arise when formulating and implementing such interventions. The distinction between transient poverty and poverty traps, for instance, bears emphasising. When poverty is likely to be temporary, it implies that the poor may, without intervention, cross over the poverty line at some stage. In this case policy may be designed either to hasten the exit out of a low-welfare state, or to insure those at risk against temporarily dropping into poverty. In the presence of a poverty trap, a different policy orientation is required since temporary support is likely to be ineffectual in ensuring convergence to a stable non-poor outcome. Policy considerations are further complicated by the possibility of multiple poverty trap mechanisms operating contemporaneously and interacting in ways that make it difficult for researchers to disentangle and identify their effects distinctly (Barrett and Swallow, 2006). As Chapters 2 and 3 demonstrate, high correlations between the mechanisms that restrict opportunities for the poor are evident.

Other considerations relate to the 'type' of policy intervention to be implemented. Should targeted households be provided with in-kind transfers that target a particular outcome (for instance, introducing a feeding scheme to ensure that children have adequate nutrition), or are they better served by receiving a cash grant? In the latter case, should the bequeathed transfer be conditional or unconditional? In the case of unconditional grants, how will targeted beneficiaries be means tested to ensure good targeting? If transfers are to be conditional, how strictly will compliance be monitored and enforced? Also, how are interventions to be implemented to ensure effective monitoring and credible evaluation? Considerations such as these are important as confidence in the effectiveness of any intervention depends on finding good answers to these questions. Moreover, given that considerable resources are likely to be committed to a given intervention, sustainability of the programme requires that the efficiency criterion is satisfied.

Implementation strategies that allow for the careful evaluation of outcomes are particularly important for determining the impact of a given programme. Ravallion (2008) points out that tensions between the goals of policy practitioners (implementers) and researchers often occur. Traditionally, programme evaluations focused on estimating its relative costs and benefits before implementation, and, following expiration of the project, determining whether implementation of the project complied with the stipulations set out in its design (Pritchett, Salimah and Hammer, 2012). More recently, the evaluation of development programmes has been concerned more narrowly on rigorous estimation of its impact on the target group with respect to the desired outcomes. The increased concern with aspects of both internal and external 'validity'⁸⁸ confers both higher credibility in evaluation studies (Angrist and Pischke, 2010) as well as a greater scope for policy practitioners to discern the relevance of a given result in different contexts (Pritchett and Sandefur, 2013).

With these concerns in mind, a review of various intervention programmes targeting improved child outcomes is provided in the next section. The aim is to provide some details of programmes that have been shown to be successful in improving the life chance of children and also to provide a sense of the magnitude of the impact

⁸⁸ Internal validity refers to the extent to which a measured outcome of a given programme is a true reflection of the actual impact caused by the intervention under investigation. External validity refers to the degree to which a given result is generalizable to different countries or contexts.

various interventions have had. A further objective is to present different types of implementation strategies and highlight differences and similarities among them where possible. Before considering these interventions, the next section provides an examination of the provision of ECD services in South Africa in comparison to two Latin American countries.

4.1.1 Early childhood development strategies: Comparing South Africa, Chile & Brazil

The analysis presented in Chapters 2 and 3 demonstrate that multiple mechanisms inhibit the opportunities of the poor to escape their circumstances. The development gaps between the deprived and well-off are revealed to emerge early in life. That significant learning deficits among poor children are evident as early as Grade 3 suggests that inequality of opportunity manifests prior to school enrolment age. It is likely that poor children are deprived of the enriching and stimulating environment that their wealthier counterparts are exposed to in their early-life, and that this disadvantage is amplified through time. ECD services are a widely used intervention to target these early deprivations and are employed in many developed and developing countries. South Africa's National Development Plan (NDP) represents a major step forward towards more integrated planning aimed at achieving specific objectives over the medium to long term. Better ECD is emphasised within the plan as an important means to tackle educational under-performance and inequity. The NDP puts forward a few broad strategies towards achieving better ECD, but the policy debates in this area are still very much alive and many policies and strategies need still to be produced. The present section contributes to the ECD policy debate by examining a few policies and practices of two Latin American countries, Brazil and Chile, and by contrasting those to what is found in South Africa with a view to identifying where risks and opportunities lie.

The focus here is largely on those aspects of ECD dealing with the provision of educational services at the preschool level, including coverage within institutions, the organisation and funding of institutions, and trade-offs between more formal and more informal models. Health and curriculum design are two key topics which do not receive attention within this section. Given the complexity of ECD, however, even the treatment of the education provisioning topic is far from exhaustive. The aim is to focus on policy matters that seem particularly pressing in the South African context.

Background to early childhood development in South Africa

South Africa has come far with its Grade R policy, which can be seen as involving the transfer of a year of ECD from separate preschools to the bottom end of the primary school system. While dated, White Paper 5 of 2001 (Department of Education, 2001) is still considered to be an important guiding document for ECD in South Africa, although much of its focus is on Grade R. Importantly, it was this White Paper that formed the basis for one of the largest structural shifts in the schooling system seen since the transition, namely the inclusion of another grade at school. The aim of the White Paper was that 90% of appropriately-aged children should be in school-based Grade R, with special attention paid to making ECD more accessible to the poor by prioritising public (as opposed to private) funding. The curriculum requirements for Grade R were first outlined in 2002 as part of the Revised National Curriculum Statement (RNCS) and have since been superseded by the Curriculum Assessment Policy Statements.

The current consensus on Grade R among researchers and policy-makers in the country is firstly that there is a policy-need to create a funding system that promotes equity and that is fiscally feasible – with major cost-drivers

being demographic trends, class-sizes and teacher salaries – and secondly that there needs to be a greater focus on the quality of Grade R and not simply access to Grade R. Concerns around under-trained and unevenly trained teachers are frequently expressed, usually in conjunction with questions surrounding how Grade R teachers should be trained. Less obvious, but no less important, is the development of an overall ‘quality framework’ that would address how quality is measured and monitored at both the school and system level. Furthermore, current feedback loops and accountability chains are under-specified or non-existent.

Below Grade R it is less clear what the official policy of government is, although Richter (2012: 27) notes that the Children’s Act of 2005 should be considered the over-arching legislation document. The role of the state below Grade R has not been especially pronounced, partly due to institutional reasons whereby children age five and above fall under the Department of Basic Education (DBE) and all children below five fall under the Department of Social Development. This has made it difficult for the State to roll out education initiatives below Grade R. Notwithstanding the above; section 6.2.2 of Working Paper 5 does make it explicit that the DBE must take the lead in education with regard to the curriculum, and especially for four year olds. It is to this end that the DBE released a ‘draft’ curriculum document in 2013.⁸⁹

In addition to the documents produced by the national Departments of Education and Social Development, the National Development Plan emphasises the need to (1) introduce an additional year before Grade R (i.e. pre-R), (2) to make Grade R and pre-R compulsory, and (3) improve the quality of Grade R and pre-R. The NDP also advocates for more state intervention, funding and innovation below pre-R (i.e. ages 0 - 3) with a focus on more flexible community or home-based solutions.

In sum, the policy need here is twofold: the quality of Grade R needs to improve and, linked to this, inequalities in the funding and modalities of Grade R need to be tackled, especially where these lead to unequal educational opportunities. Policy on preschools in South Africa is fragmented, largely managed by provinces, and lacks a clear national guiding framework. The NDP emphasises making a year below Grade R ‘universal’, not necessarily within primary schools, and better resourcing for preschools in general.

Access to early childhood care in South Africa, Brazil and Chile

As is the case with primary and secondary schooling, enrolment in institutions at the preschool level in South Africa seems to be high by international standards. Enrolment levels for children aged 0 to 5 in South Africa are very similar to those of Brazil, which in turn has a high level of enrolment for 0 to 2 year olds compared to the OECD mean. The cross-country comparison suggests that the actual age at which children enter primary schooling is about right.

Table 4.1: Key statistics on early childhood care and development in three countries

Indicator	South Africa	Brazil	Chile
Enrolment ratio by age:			
Age 2 and under	20%	9%	2%
Age 3 to 4	54%	47%	59%
Earliest legal age of entry into Grade 1b	5y 6m	5y 9m	5y 9m
Average actual age of entry into Grade 1c	6y 2m	6y 2m	-

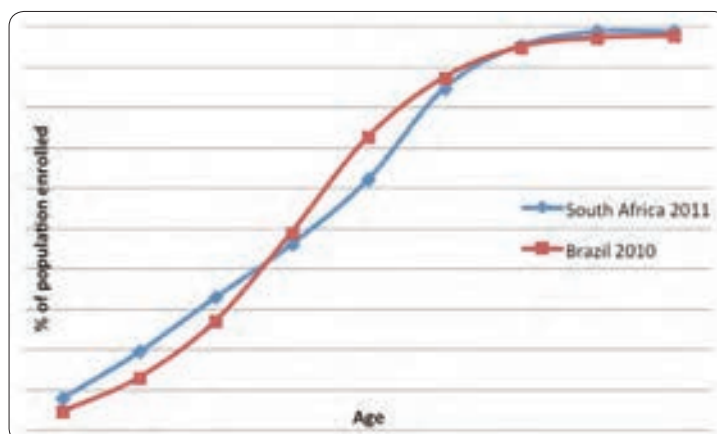
⁸⁹ The South African National Curriculum Framework, available at <http://www.education.gov.za>. An earlier 44-page document, the National early learning and development standards for children birth to four years (NELDS), also available at the same website, was released in 2009 but it presents what is essentially a framework. The detailed instructions for teachers appear in the 132-page document of 2013.

Notes: (a) OECD (2013: 269) and own calculations using Statistics South Africa's 2011 General Household Survey. All statistics refer to 2011. (b) For South Africa, the South African Schools Act with amendments applies. For Brazil, Diário Oficial da União of 21 October 2010 (p. 17) applies. For Chile, Ministerio de Educación Decreto 1718 of 3 October 2011 applies. (c) For South Africa, calculations on data used for Figure 4 in Gustafsson (2010). For Brazil, own calculations using 2012 school census.

Note: In this table 'Grade 1' means the start of a twelve-year schooling cycle, so in the case of Brazil 'Grade 1' means the 'first year' ('primer ano').

Table 4.1 above shows that South Africa's enrolment rate for those children aged 2 and under (20%) is considerably higher than either Brazil (9%) or Chile (2%), and indeed higher than the OECD average of 3%. This being said, there are countries with comparably high rates of 0-2 enrolment (for example Korea, 32%; Spain, 29%; and Russia, 18%). It is prudent to ask whether or not this is a data problem in South Africa – although this appears not to be the case. The 2008 NIDS survey indicates enrolment rates of 35% in ages 0-2 (Gustafsson, 2010: 5). The higher figures in NIDS rather than the 20% figure from the GHS (reported in the table above) is probably due to NIDS including 'day-mother/gogo', which, if excluded, yields estimates similar to the GHS. Figure 4.2 below illustrates that South Africa and Brazil have similar enrolment profiles with South Africa having slightly higher enrolments for 0-3 year olds and Brazil slightly higher enrolments for 3-5 year olds.

Figure 4.2: Enrolment ratios in South Africa and Brazil



Notes: for South Africa, own analysis of General Household Survey data. For Brazil, own calculations from a representative extract of the 2010 census provided online by Integrated Public Use Microdata Series (IPUMS) at <https://international.ipums.org/international>.

The Grade R enrolment ratio in South Africa

Grade R is difficult to classify as a school grade, yet the classifications one uses shapes the debates in important ways, most notably whether it falls under preschool or primary schooling. Similar ambiguities can also be seen in Brazil. In South Africa the official age of entry is 5 years and 6 months with non-repeating enrolment for this age-

cohort being 94% in 2011 and 95% in 2012 (own calculations). These figures are higher than the 70% of children in school at Grade R level because the question asks whether the child is in Grade R inside or outside school. It is also important to bear in mind that these figures should be interpreted against the backdrop of rapidly expanding access to Grade R, which has more than doubled from 300 000 in 2003 to over 735 000 in 2012. The Grade R estimates derived from NIDS are somewhat lower with 80% of Grade 1 children in 2012 having had Grade R. However, closer inspection suggests that this is almost certainly a major under-estimate of either previous enrolment or current enrolment because of the way the questions were posed in the survey, implying that Grade R should only occur in schools⁹⁰. There is clearly a need for the harmonization of survey instruments and in a more general sense, better specifications as to what constitutes Grade R and what does not. Statistics published by the Department for Social Development (DSD) on access to publicly funded ECD services (970 000 enrolled and 720 000 publicly funded) underestimate proportions relative to household surveys (approximately one third not covered). DSD reports do not make explicit how data are collected and there are a number of contradictions across different annual reports, as the DSD itself has revealed in its presentation to Parliament⁹¹. There is clearly a problem with the collection of enrolment statistics (and other statistics) from preschools in South Africa, including those which receive public funding. This problem needs to be fixed if the policy debates are to be properly informed.

Key structural features of ECD in Brazil

Brazil has an integrated education monitoring system in which preschools are essentially monitored in the same way as schools are. The result is much better data on enrolments, teachers, facilities and other issues in preschools in Brazil, compared to South Africa. The Brazilian system can teach South Africa important lessons on the basics of effective monitoring.

Brazil's preschools are considerably larger than those in South Africa, which raises the question of whether South Africa's preschools are large enough to maximise access to scarce resources, such as good teachers and information and communication technologies (ICTs). South Africa's preschools fare worse than Brazil's against several indicators, including access to electricity, the pupil/teacher ratio, and the level of professional training of teachers.

One indicator against which South Africa appears to perform better, however, is the point at which children move from preschool (or no school) to the primary school environment. This occurs around a year earlier in South Africa than Brazil, after one has taken into account the shift towards Grade R in South Africa, and a very similar and recent shift to a new 'first year' in Brazil.

In South Africa age norms are clearly applied more loosely than in Brazil, as manifested for instance in the way children transition into primary schools. Whilst in Brazil around 15% of learners are outside of what can be considered an ideal age range in the lowest primary school grades, in South Africa this figure is 32%. However, it is also important to note that the South African age variation within schools is similar to that found in Brazil. The issue is thus whether specific schools in South Africa are taking in learners too early or too late for a proper implementation of the curriculum to occur. This is different from the problem of too much age variation within schools or within classes.

Chile's CASH programme

Chile's 'Know your Child' programme, or 'CASH' as it is known in Chile, was selected for relatively detailed discussion as the programme has an unusual and innovative design, and has been shown to have a positive impact on later

⁹⁰ Specifically, the questionnaires imply that Grade R does not occur in 'pre-primary', 'pre-school' or 'creche'. Moreover, within the data, no-one participates in these kinds of institutions and is simultaneously classified as being in Grade R. The age-specific magnitudes of participation in these institutions suggest that a better identification of Grade R would have resulted in figures comparable to those of the General Household Survey. The implication that Grade R does not exist in, for instance, pre-primary schools is not found in the General Household Survey questionnaire.

⁹¹ See 'Presentation to the Portfolio Committee on Social Development: Briefing by the DSD on the uniform norms and standards for the subsidisation of children in ECD Centers', available at <http://www.pmg.org.za/report/20130312-department-social-development-uniform-norms-and-standards-subsidizati>.

learning by an apparently rigorous impact evaluation study. What is unusual about the programme is that the publicly funded part of the programme is largely focussed on the training of mothers, who in turn form small preschool groups in the local community, in which publicly funded educational materials are used. A rotational approach is followed, so that virtually all mothers of the targeted children receive some training in ECD methods. In Chile the model was created to provide ECD services for sparsely populated areas where the normal model of stand-alone preschool institutions run by professional teachers was not feasible. It is possible that the model may be practical in other contexts too, for instance where the key problem is a lack of trained educators. Those involved in the programme argue that the training of mothers is particularly valuable as this helps to bridge the usual divide between the institution and the home, as the mothers are involved in both. A useful South African example of this 'cascade-model' is the Philani Mentor Mothers Project, which has been shown to substantially reduce malnutrition within participating households (see Le Roux et al.(2010) for the results from the randomised control trial evaluation).

Discussion and conclusions

Early childhood development is a 'Cinderella sub-sector' in the sense that its value for social development and for combating poverty is much larger, according to the available empirical evidence, than is suggested by the attention it receives in research, the policy discourse and the media. This anomaly receives attention in texts such as Vegas and Santibañez (2010). Fortunately, it seems as if the situation is gradually changing and that early childhood development is becoming more prominent on the policy agenda.

ECD is inherently complex because it involves bringing together so many different actors in government. The focus in this section has been strongly on bringing to the fore the important operational matters that must be understood properly if effective ECD strategies are to be formulated. Though the attention here was on drawing lessons from some Latin American countries, important lessons can be drawn simply by examining the South African data. For instance, it is important for questions in standard household surveys to be structured in a way that takes proper account of how ECD works in South Africa. The General Household Survey of Statistics South Africa assumes that children below age 5 cannot be in Grade R, and the National Income Dynamics Study (NIDS) questionnaires assume that Grade R occurs only in certain kinds of institutions. Both assumptions are incorrect and lead to problematic statistics on what has been a key government programme in ECD. The only ongoing system for gathering data from education and care institutions below Grade R is the system overseen by the Department of Social Development to monitor publicly funded, and other, preschool children. Here it is clear that the system is incomplete. Apart from total numbers of children, very little reporting occurs and the enrolment totals appear to cover only around two-thirds of actual enrolments in the sub-sector (assuming that household surveys provide an accurate overall picture). But these problems seem to be manifestations of a deeper problem of general neglect of the ECD sub-sector and a lack of clarity around which government institutions exercise oversight in the basic monitoring process.

Turning to cross-country comparisons, the section highlighted structural differences between preschool institutions in South Africa and Brazil. It is much easier to obtain a picture of the situation in Brazil than in South Africa, because the Brazilian data are relatively comprehensive, well-organised and publicly available. This is achieved in Brazil largely because the same authorities responsible for gathering data on schools are also responsible for gathering data on all institutions, public and private, enrolling children below the school level. The system gathering information on schools and preschools is one system, with a unified suite of questionnaires, data capturing approach and set of reports. The system moreover gathers information on individual children. This latter feature would allow the authorities to know the

preschool backgrounds of learners in schools, which in turn could assist in understanding the root causes of learning problems in schools. The examination of the Brazilian system provided in this chapter serves as a reminder that something similar needs to be established, and can be established in South Africa. Brazil experiences resource and capacity constraints similar to South Africa's, meaning Brazil is a relatively good yardstick of what is possible. Without a well-informed picture of what currently exists, and how this evolves from year to year, it becomes virtually impossible to plan for ECD that covers all South Africa's children, and not just pockets of the country.

So what do the structural differences between Brazil and South Africa, insofar as they can be identified, suggest about the next steps in South Africa? South Africa's preschool institutions fare poorly in comparison to Brazilian ones against a number of input indicators: access to electricity (needed to cook meals, for instance), ratios of learners to educators (these are considerably higher in South Africa), and the years of formal education of teachers working in ECD institutions. Clearly, there needs to be a carefully designed set of policies on improving these inputs, whilst taking into account likely budgetary limits.

Against one indicator South Africa performs well, namely getting children into schools early enough. What is interesting is that both South Africa and Brazil have recently added an extra year of schooling to the bottom end of primary schooling so that children could gain access one year earlier to the benefits of primary schooling, benefits which include being close to teachers in later grades who have a keen interest in the basics of literacy and numeracy being taught properly in the initial grades. South Africa's new Grade R is arguably better than Brazil's new 'first year' in two respects. Firstly, this additional grade brings about a schooling cycle that effectively consists of thirteen years in South Africa, whilst in Brazil the 'first year' shifted the schooling cycle from an eleven-year cycle to a twelve-year cycle. More pertinent to this section, however, is the fact that entry into Grade R in South Africa occurs around a year earlier than entry into the 'first year' in Brazil. This is true both with respect to official age-of-entry policies and with respect to what actually happens in schools. The evidence suggests that South Africans should not be concerned that, on average, children are starting school too late. This concern was probably valid ten years ago, but should not be a large systemic concern now (though late entry by relatively few children should remain a concern). This has implications for the way the National Development Plan target of universalising a year of education below Grade R is interpreted. This level of education should probably occur mostly in preschool institutions.

There is an important caveat to the above discussion about age-of-entry in South Africa and Brazil. Though on average children enter school earlier in South Africa than Brazil, there is far more variance in the age-of-entry in South Africa than Brazil. For instance, whilst 15% of 'first series' (or 'second year') children in Brazil are of an age that lies outside the most common 18 months (1.5 years), the figure for Grade 1 in South Africa is 32%. This greater variance in South Africa is largely due to age variances between schools. Age variances within grades in schools are around the same in South Africa and Brazil. This raises important questions around whether age-of-entry practices should be more consistent across schools in South Africa. The South African situation could be the result of insufficient clarity around ideal ages at various stages of the preschool cycle. In Brazil (and Chile) this is much clearer, with the Brazilian policy drawing clear distinctions between when children should be in crèches and when they should be in preschools.

This section also examined one specific and non-traditional model of ECD that seemed relevant from a South African perspective. This was the Chilean 'Know your child', or 'CASH', model, designed to provide ECD in sparsely populated

areas where it is not cost-effective to employ fully trained ECD teachers in the traditional sense. This model is perhaps of interest to South Africans, not just for sparsely inhabited areas, but even in other areas where there are not yet sufficient numbers of qualified teachers available. The CASH model, described in some detail above, basically involves getting qualified teachers to train 'monitors', who in turn train mothers who provide ECD for their own children and those of their neighbours. What is noteworthy about CASH is that the authorities implemented an impact evaluation study following a relatively rigorous quasi-experimental design, which pointed to considerable positive results for children who participated in the programme, in terms of test results at the primary school level. Programmes of this nature could address a recurring concern in the South African ECD policy debates (and in the NDP), namely that interventions do not sufficiently concentrate on improving the support given by parents and caregivers in the household.

4.2 Policy interventions for improved child wellbeing

4.2.1 Conditional cash transfers

Over the last fifteen years, conditional cash transfers (CCTs) have become a popular method for targeting development objectives. Fiszbein and Schady (2009) suggest that CCTs had been adopted in only three countries in 1997, but they report that by 2009 twenty-nine such programmes were in existence, and the number of countries to have adopted a CCT programme has, no doubt, grown since. CCTs are premised on the notion that poor households may, in the face of information and financial constraints, undertake suboptimal investment in the health and education of their children, and thereby jeopardize their early development and later life outcomes. By conditioning social grants, beneficiaries are not only granted direct poverty alleviation via the income received, but they are also incentivized to change their behaviour in a manner that aims to encourage child development. To the extent that contingent transfers are effective in prompting positive behavioural changes, they could be seen as particularly useful for challenging chronic poverty since they explicitly target both present and future poverty (Ravallion, 2008: 24). Many CCTs are designed to target early life child development by providing beneficiary parents with education on nurturing practices (Fiszbein and Schady, 2009: 55). CCTs have indeed been subjected to rigorous evaluations. The World Bank report shows that "CCTs generally have been successful in reducing poverty and encouraging parents to invest in the health and education of their children".

Mexico's PROGRESA/Oportunidades⁹²

PROGRESA/Oportunidades (hereafter PROGRESA) is an antipoverty CCT programme introduced in Mexico in 1998. The initial phase covered 300 000 poor families in 495 largely rural communities. By 2009 the programme had been scaled up to cover 5 million households across the country (Schultz, 2004). As part of the programme payments⁹³ were disbursed to mothers in each beneficiary household every other month, but were conditional on participation in a set of activities related to child development. A partial list⁹⁴ of these conditions follows. For households with children aged 0-23 months the conditions included immunization, periodic visits to clinics where nutrition is monitored, nutrient-dense supplementation is provided and parents are educated on ensuring health and good nutrition for their children. In the case of children aged between 2-5 years, all but the immunization conditions apply. Pregnant women were also required to undergo prenatal care from health clinics. All adults in beneficiary households, furthermore, were required to participate in annual information sessions during which instruction relating to health, hygiene and nutrition was provided by trained medical personal (Gertler, 2004).

⁹² PROGRESA is an acronym for the Spanish Programa de Educación, Salud y Alimentación (which translates to Education, Health, and Nutrition Program). In 2002 the programme was renamed Oportunidades which translates to 'opportunities'.

⁹³ Fiszbein and Schady (2009) estimate the transfer amount to be around 22% of average household consumption expenditure of the eligible group.

⁹⁴ Taken from Gertler (2004), where a more comprehensive description of PROGRESA's conditions is available.

Households may underinvest in child human capital for several reasons, including resource constraints and lack of awareness of the true value of returns to such investment. PROGRESA targets both of these factors by providing a cash transfer, which loosens the resource constraint, and encourages behavioural change through imposing conditions that directly improve health and educational outcomes, as well as through providing information that clarifies the importance of human capital investment. The effectiveness of the intervention can then be determined by measuring whether or not better health and educational outcomes are observed in children enrolled in the programme than would have been the case in the absence of intervention. PROGRESA's implementation strategy aids this measurement as it bears the key feature of having been randomized during the first phase (Schultz, 2004: 202). Owing to budgetary concerns, the Mexican government was unable to cover all households that were identified as eligible for participation in the programme immediately, leaving enrolment to be undertaken in two phases (two years apart) (Gertler, 2004). Households were then randomly assigned to receive the benefits during the first or second phase, creating, in effect, a randomized experiment with a 'treatment' and 'control' group⁹⁵. This feature, combined with careful data collection, simplifies impact evaluation of the programme in that the control group serves as a counterfactual to the treatment group (Gertler, 2004: 338).

Gertler (2004) undertook an evaluation focused on establishing the impact on child health attributable to participation in the PROGRESA programme. He enlisted three health outcome indicators which include (i) child morbidity, as measured by mothers' reports on whether their children were ill in the four weeks leading up to the survey; (ii) child height and stunting; and (iii) anaemia. A careful comparison of these measures between the control and treatment groups revealed that children benefiting from PROGRESA were, on average, between 22.3% and 25.3% less likely to have been reported as being sick in the last four weeks. The study also sought to determine whether impact differences could be observed for children who had different periods of exposure to the programme. It was found that children in beneficiary households displayed rates of illness that were nearly 40% lower than children in the control group after two years of exposure to PROGRESA, indicating that cumulative effects were evident. The study also found that children in the treatment group were on average one centimetre taller than those in the control group. Treatment children, furthermore, were 25.5% less likely to be anaemic than children in the control group by Gertler's (2004) estimation.

PROGRESA has also been found to be effective in lowering the poverty headcount, reducing the incidence of child labour and improving the quality of caloric intake in beneficiary households (measured by the diversity in food consumption) (Fiszbein and Schady, 2009). Evidence for the latter outcome is presented in a study that attempted to evaluate the impact of the cash component of PROGRESA in isolation of the other components of the programme by exploiting the fact that enrolment was phased in and that transfer amounts increased over the course of participation in the programme (Fernald, Gertler and Neufeld, 2008). This allowed the authors to discern the cumulative effect of cash received through PROGRESA on child development indicators by comparing only children who benefited from the programme throughout their entire lives with each other – the difference between them being the cumulative value of the cash transfers received through the programme. Anthropometric indicators that were assessed include height-for-age scores, motor development, and BMI scores. They found that higher cumulative cash transfers to the beneficiary households were associated with improved outcomes across all indicators (Fernald, Gertler and Neufeld, 2008: 835). This finding suggests that the value of cash amounts does play a role in the magnitude of effects. PROGRESA's phased implementation also allows for an evaluation of the relative benefits to early intervention. Fernald, Gertler and Neufeld (2009) undertook a ten-year follow up evaluation on the impact on child development

⁹⁵ The 'treatment' group refers to the group of households who were enrolled in the programme in phase one while the 'control' group refers to those who were allocated to receive benefits only during phase two of the programme rollout. It is also important to note that the control group were not informed that they would be later covered by the programme (Gertler, 2004: 337). Had they known that they would receive benefits, this group may have changed their behaviour in anticipation of being enrolled.

and found that children with exposure to the programme at an earlier age displayed less behavioural problems (as reported by mothers) than did their peers who gained exposure to the program 18 months later. They also found a positive association between the cumulative value of transfers received by a given household and children in that household having higher verbal and cognitive scores on assessments.

The costs of the PROGRESA programme are substantial. Banerjee and Duflo (2009: 153), for instance, report that the intervention increased education among children at a cost of \$6000 per child-year. Glewwe and Kassouf (2012: 506) report PROGRESA's costs to amount to approximately 0.4% of Mexico's GDP.

Colombia's Familias en Accion

Familias en Accion (FA) is a CCT instituted in Colombia in the year 2000 and is largely modelled on PROGRESA (Attanasio et al., 2005). The intervention was implemented in rural towns with populations not exceeding 100 000 inhabitants, and with sufficient infrastructure meeting the programme requirements – including a bank, schooling and adequate healthcare facilities. As a result of these requirements several towns were initially excluded from the programme despite meeting other eligibility criteria. Later, some of these exclusionary conditions were relaxed and by 2010 coverage had expanded nationally to include 2.8 million households or 65% of the population (Baez and Camacho, 2011). Beneficiaries of the programme received cash payments⁹⁶ conditional on school attendance, and visits to health care centres. As in the case of PROGRESA, impact evaluation of FA was aided by the fact that one group of beneficiaries received delayed treatment. In other words, researchers have a counterfactual that outcomes in the benefiting group can be measured against.

Attanasio et al. (2005) undertake an evaluation of FA's impact in the short-run (one year) by comparing different outcomes among control and treatment groups⁹⁷. They find that consumption increased by 19.5 percentage points in the treatment group relative to the control group. Consumption of nutrient-dense (such as protein rich) foods was found to be considerably higher among enrolled households relative to non-beneficiaries. The programme was also found to be effective in incentivising health clinic visits. The proportion of enrolled families with children under four years who visited health care centres at a specified frequency was more than double that of control households. Specifically, for children under 24 months, 40% were consistent in keeping to the preventative care schedule among enrolled households while the number was 17.2% for households not covered under FA. Taking the difference between these two numbers, they label the impact factor of the programme on preventative care to be an estimated 22.8. FA's preventative care impact factor for children aged between 24-48 months was estimated to be 33.2. Together, these impacts (higher quantity and quality of caloric intake, as well as more visits to child care clinics) portend improved child health outcomes in the treatment relative to the control group. To measure this effect the authors compare differences in the proportion of children who suffered from diarrhoea in the 15 days before each survey interview, as well as differences in height as a proxy for nutritional status. They find an impact factor of -11, implying that children benefiting from FA were less likely to have suffered from diarrhoea than they would have in the absence of the programme. Treatment children were also found to be taller, on average, than children in the control group. For children aged 12 months the difference was 0.44cm though for older children the difference was not significant. A long-term study of FA's impact on educational outcomes estimated that children benefiting from the programme were between 4-8 percentage points more likely to complete high school than children in a control group (Baez and Camacho, 2011).

⁹⁶ Transfers were equal to 17% of the average consumption expenditure of enrolled households (Fiszbein and Schady, 2009: 84).

⁹⁷ Both groups were surveyed at 'baseline' – before the programme commenced – then again one year later, after which the control group had not yet received benefits.

4.2.2 Unconditional cash transfers

While CCTs have generally been shown to be effective in reducing poverty, improving nutritional status and health, and increasing educational attainment among poor households, these achievements come at a considerable cost. The Colombia experience highlights the importance of having adequate infrastructure in order to provide the services on which the programme benefits are conditioned. Monitoring and enforcing compliance with conditions also poses a substantial administrative burden (Aguero, Carter and Woolard, 2006). Coady, Perez and Vera-llamas (2005), for example, estimate that administrative costs make up approximately 10% of PROGRESA's total budget. These disadvantages point to a role for unconditional cash transfers (UCTs) as a cost-effective antipoverty policy tool. Almost all CCT evaluations measure the intervention's impact by comparing outcomes of the treated group against a control group who received no programme benefits. Policymakers may also be interested to know what targeted outcomes might have obtained had households simply received the payments unconditionally. To the extent that poor households undertake suboptimal investment in child development due to cash constraints, a UCT may raise such investments unencumbered by the administrative burden that accompanies conditions. This section presents evaluation findings on the effectiveness of UCTs undertaken in South Africa and discusses the findings of an impact evaluation of an experimental study undertaken in Malawi that attempted to compare the impact of a CCT relative to a UCT.

South Africa's Child Support Grant

The South African Child Support Grant (CSG) is an UCT aimed at increasing child welfare in poor households. Starting in 1998, beneficiary households received a cash payment (paid to the registered primary caregiver of eligible children, but aimed specifically at mothers) valued at approximately 10% of the means tested threshold (which at the time was R800 and R1100 for urban and rural household income respectively) per child aged under seven years. The CSG has since expanded both in terms of coverage (the eligible age was extended to all children younger than 18) and the nominal value of benefits (from R100 to R300). By 2013 more than 11 million children were benefiting from the programme (South African Social Security Agency (SASSA), 2013), making the CSG the largest social assistance programme in South Africa⁹⁸.

Determining the intervention's impact is complicated by the fact that, unlike programmes such as PROGRESA, the CSG was not implemented in stages during which early enrolment could be randomly assigned. There is thus no 'control' group against which to measure outcomes, meaning that estimation of the CSG's impact requires a different methodological strategy than was used in randomized evaluations. Using national surveys, and applying an econometric technique that allows researchers to construct a counterfactual in non-experimental studies, three evaluations of the CSG – by Aguero, Carter and Woolard (2006), Heinrich et al. (2012) and Coetzee (2013) – were able to determine the effectiveness of the programme and report on any improvement in child development outcomes. Aguero, Carter and Woolard (2006) estimate the CSG's impact on early-life (defined as 0-3 years) by comparing a standard measure of nutritional status (height-for-age indicator scores) between children with different lengths of exposure to the programme. Their analysis therefore uses the fact that some children would have benefitted from the CSG throughout the first three years of their lives while others, who though eligible, may have had no benefit from the programme during their early life. Using the KIDS data they find significant improvements in nutritional status among beneficiary children with exposure to the CSG exceeding 50% of their early life. They estimate that children exposed to the programme will be, on average, 3.5cm taller in adult life than they would have been in the

⁹⁸ The South African Social Security Agency currently administers 7 UCTs, two of which (the Foster Child Grant and the Care Dependency Grant) are also targeted at children (SASSA, 2013). This report limits its analysis to the CSG as it is by far the largest (accounting for 70% of the total number of transfer payments) of all UCTs, and, given that it targets all underprivileged children, has more direct bearing on this report.

absence of the transfers. It is, furthermore, found that the impact is greatest for children who first enrolled in the programme at age 12 months or younger. They also calculate returns to investment in human capital and report an estimated rate of return to the CSG of between 160 and 230%. This implies that every rand spent on the CSG will yield an increase in the future earnings of beneficiary children of 1.6 to 2.3 Rand (Aguero, Carter and Woolard, 2006). Coetzee (2013) extends the preceding evaluation by considering all children enrolled in the programme and using data from a national survey (NIDS). As in Aguero et al. (2006), she finds a positive effect of exposure to the CSG on children's nutritional status although the impact size is smaller. The smaller measured impact may result from the fact that Coetzee (2013) included all age eligible children in her analysis whereas Aguero et al. (2006) attempted to estimate the impact of the CSG only on children aged less than three years.

Positive results are also reported in an evaluation commissioned by the South African Department of Social Development (Heinrech et al., 2012). The report indicates that children benefitting from the CSG are 7.7% more likely to be undergoing growth monitoring. Positive effects on health are also found, with children with exposure to the CSG from birth being 9 percentage points less likely to be ill than children who enrol later (Heinrech et al., 2012). A positive impact on height-for-age is also reported among certain subsamples of beneficiary children: girls and children whose mothers have an educational attainment of at least grade eight. This finding may be interpreted as suggesting a role for conditionality. Child development among the poor requires more than increased spending on inputs. The quality of caloric intake also matters, as do other complementary behaviours which may require knowledge or information on the benefits of such behaviours. When information on child nutrition is incomplete, imposing conditions on the receipt of transfers incentivises gaining that information and may increase the desired effect of a given programme. The South African government has identified this as an important policy target, with the Presidency's National Planning Commission proclaiming that "effective nutrition education for health workers, mothers and other caregivers should be a national priority" (Commission, 2012: 231).

Determining the benefits to conditionality would require a comparison between two similar groups who received the same transfer, with one group subject to conditions and the other not. The Malawi experiment presents such a case.

Malawi's experiment with conditionality

An innovative research project conducted in Malawi attempted to isolate the impact of conditionality on child outcomes (Baird, McIntosh and Ozler, 2011). The study took place in the southern region of the country and involved 176 enumeration areas (EAs) comprising both rural and urban localities. The EAs were randomly assigned to treatment and control groups with the treatment group receiving a monthly cash transfer valued at approximately 10% of the average consumption expenditure of EA households⁹⁹. The treatment group was further split into two groups, one of which would receive the transfer unconditionally (UCT group) while the other would receive the benefit conditional on school attendance (CCT group). The researchers were also interested in determining the impact of the transfer on fertility and marriage decisions of girls of school going age¹⁰⁰. Thus only poor households that contained school-aged girls were eligible for enrolment in the programme. Cash transfers were made both to household heads as well as individual girls in eligible households. The treatment impact was measured on four outcomes of interest: school enrolment, test scores, pregnancy and marriage. Data on the variables of interest were collected before commencement of the programme and then one and two years respectively after the initial rollout. The experimental implementation of the project means that differences in changes between the initial survey and follow-up surveys can be interpreted as being explained, to some degree, by exposure to the cash transfer.

⁹⁹ The nominal value of the cash transfer was itself randomized at the EA level and varied between \$4 and \$10 at two dollar increments.

¹⁰⁰ Malawi has a comparatively high fertility rate among adolescents: 133 per 1000 young women aged 15-19 (Baird, McIntosh and Ozler, 2011).

The differences in school enrolment and test scores were in line with the intuitive expectation that those in the CCT group would reflect better outcomes than both the UCT and the control group. CCT participants attended school 10 days more, on average, than the control group. The difference in attendance rates between the UCT and control group was insignificant. A similar result was found when evaluating differences in test scores among the three groups; the CCT group performed better than the UCT and control group while the latter two displayed no significant difference in outcomes.

When assessing the impact on the other two outcome variables, this pattern changes. Girls in the CCT group were 1.2 percentage points less likely to be married than the control group, while the UCT members were 8 percentage points less likely to be married than those in the control group. Girls in the UCT group were also 6.7 percentage points less likely to have been pregnant than girls in the control group. The difference in fertility rates between the CCT and control group were again insignificant. In offering an interpretation of these results the authors point to the fact that girls in the CCT group who dropped out of school were considerably more likely to marry or fall pregnant than girls in the UCT group who dropped out of school. This pattern suggests that the transfer has a direct bearing on the behavioural decisions of Malawian adolescent girls.

Two implications of these findings stand out. Firstly, the fact that no difference in schooling outcomes were observed between the UCT and CCT groups indicates that the more cost-effective intervention can be deployed without a loss of impact on that particular outcome. Furthermore, given that evaluations of PROGRESA suggest that the absence of conditions would significantly reduce the programme's effectiveness, the Malawian result reflects the salience that different settings may have on the outcomes of interventions that are otherwise similar. The second implication of note is the fact that conditionality reflected a poorer impact with respect to one of the outcomes of interest – teen marriage and pregnancy. Without access to the cash transfer, dropouts in the CCT group had less incentive than those dropouts in the UCT group to delay marriage and pregnancy. Thus, depending on the desired outcome, a CCT could be less effective than a UCT.

4.2.3 In-kind transfers

While cash transfers have the benefit of being relatively simple to implement and, in the case of UCTs in particular, carry a minimal administrative burden, they also have some disadvantages. A particularly important one is that much discretion is left to transfer recipients who may choose not to spend the cash on goods and services that promote child development. In-kind transfers mitigate this problem by directly providing the goods/service that would otherwise be conditioned on or hoped for. Moreover, cash transfers, as a policy instrument, offer a limited range of identified poverty-trap mechanisms and may not be effective in affecting other important development objectives such as social exclusion, discrimination, or protection from violence and other adverse behaviour (Steuli, 2012). Lastly, cash transfers, whether conditional or unconditional, may induce perverse behaviour among the targeted population. Development programmes involving in-kind transfers have much less scope for incentivising undesired behaviour since take-up of the programme unambiguously implies that the targeted outcome is being treated. A broader set of development outcomes can also be targeted via in-kind transfers. For instance, the Perry School Programme included home visits by educators to encourage parental participation in child learning among households identified as underprivileged. Designing an effective cash transfer programme targeting such an objective would likely be considerably less easy than simply providing the service directly. Also, Olney, Rawat and Ruel (2012)

identify deficiencies in the quality of the conditioned on health services as a hindrance to the effectiveness of CCTs. By employing all resources available for a given programme to the supply-side of the intervention, in-kind transfers may ensure a greater quality of service than might be obtained under a CCT programme.

Peru's Wawa Wasi¹⁰¹

The Programa Nacional Wawa Wasi was introduced in Peru in 1993 with the stated objective of promoting “actions oriented towards generating favourable conditions for the optimal development of children below the age of four, especially those at risk” (Cueto et al., 2009). Under the programme, community childcare centres were established in poor neighbourhoods and staffed with local caregivers who were vetted by local communities and trained by programme officials to provide childcare as well as various other early child development services. The specific outcomes targeted by the intervention included child protection, improved cognitive, motor, and social development, improved health and nutritional status, and promoting nurturing parental practices. The details of this programme may bear insights for policy in South Africa, given the government’s proposal to introduce a programme providing ECD services with ‘universal access’ (Commission, 2012: 30). Each of the Wawa Wasi objectives are also identified in the NDP as areas requiring policy focus with child protection having come under increased focus recently.

Assessment of the Wawa Wasi’s impact is less simple than those discussed above given that the implementation design did not involve random assignment, thus making it difficult to measure effects against a counterfactual. However, in collaboration with the Young Lives project¹⁰², researchers were able to acquire the data necessary to undertake an evaluation of the Wawa Wasi’s impact on child outcomes (Cueto et al., 2009). Enumerators of the Young Lives project undertook a survey on a sample of children from poor households in Peru in the year 2002 and collaborators of the project conducted follow-up interviews of the same households in 2006. Cueto et al. (2009) used the fact that some children enrolled in the Young Lives project that were not participating in Wawa Wasi during the 0-36 month period of their early-lives to establish a treatment (exposed to Wawa Wasi in early-life) and ‘contrast’¹⁰³ (unexposed to Wawa Wasi in early-life). They conduct a quantitative analysis testing for differences in outcomes between the two groups, and also present some qualitative results from taken from in depth interviews conducted with the two groups.

The researchers were unable to find a significant difference in outcomes between the treatment and contrast children in their quantitative analysis. Positive impacts of Wawa Wasi are reported by beneficiary mothers in interviews, however. Mothers report that their enrolled children display better hygiene practices, are more confident and independent than children who were not exposed to the programme. Beneficiary mothers point to specific observed positive behavioural changes that include washing of hands before eating and after toilet use; singing songs learned at the Wawa Wasi; and being more communicative. They also find that non-participating mothers are typically not fully informed on Wawa Wasi’s objectives. Most of the ‘contrast’ group mothers interviewed believe that they are simply day-care centres where working mothers leave their children, unaware of the emphasis on stimulation, healthy nutrition and other early childhood development objectives. This again underscores the importance of adequately communicating the nature, objectives and benefits of intervention programmes.

The Guatemalan experiment

The central argument for early life intervention is that investments in the wellbeing of young children results in improved adult life outcomes. Some evidence for this claim was discussed in Chapter 1 where the Perry project

¹⁰¹ Wawa wasi translates to ‘house of children’.

¹⁰² The ‘Young Lives’ project is an international study focusing on child poverty and involves tracking two cohorts of children (12000 in total) in four countries (Peru, India, Ethiopia and Vietnam).

¹⁰³ Because selection into the Wawa Wasi intervention was not random, the authors avoid ascribing the label ‘control’ to that group of children who were not exposed to the programme during their early-life.

and Abecedarian programme were shown to have yielded improved behavioural and labour market outcomes among those who were enrolled as children. These were comprehensive intervention programmes that targeted a range of channels for early-life development. A Guatemalan randomized experiment undertaken between 1969 and 1977 provides a rare opportunity to determine the long-term effects of an intervention targeting early childhood nutrition specifically. This experiment bears relevance to South Africa where, as indicated in the National Development Plan, a nutrition programme is mooted for future implementation (National Planning Commission (2012: 299). Drawing a link between the poor nutritional status and educational outcomes of South African children, the document suggests that such a programme may improve on the inadequate skills base evident at present. The Guatemalan experiment may provide some indication as to whether such an outcome can be expected.

Four villages – comprising approximately 2800 children – that were similar in various observable characteristics¹⁰⁴ were selected into the experiment. Treatment was randomly assigned to two of the villages with the two others serving as a control group, the experiment running between February 1969 and February 1977. The treatment included the provision of an energy drink (known as atole) high in protein and also containing several micronutrients such as iron, thiamine, ascorbic acid, vitamin A and others. These drinks were distributed at feeding centres within the two respective treatment communities twice daily and on a voluntary basis. To avoid potential confounding effects that could arise through interaction between treatment and control groups, members of the control group also received a flavoured beverage devoid of much of the nutrients contained in atole¹⁰⁵. Both treatment and control groups also received preventive care medical services such as immunization facilities at the feeding centres.

Intensive surveys were conducted in all four villages prior to the programme rolling out and periodically throughout the programme's duration, providing rich data for analysis of the intervention's impact. From this data, Maluccio et al. (2006) are able to conclude that treatment children aged 0-36 months increased their caloric intake by 18%, on average, over control group while protein intake was 45% higher among the treatment group. Many of the children were tracked after the intervention expired in 1977. One follow-up survey was conducted in 1988-1989, and another in 2002-2004. Martorell, Habicht and Rivera (1995), using data from the earlier follow-up survey, show that children in the treatment group reflect improved height, weight and BMI measures relative to the control group, suggesting that supplementation improved nutritional status. Maluccio et al (2006), employing the 2002-2004 follow-up survey data, later attempted to estimate the differences in human capital attainment between the treatment and control groups by considering measures of education attainment, grade progression rates and cognitive ability. They find no impact on educational attainment for the sample as a whole, but do find significant differences in attainment for women. Women who were exposed to atole in early-life were significantly more likely to complete primary school and enter into high school than were woman in the control group. They next explored potential differences in grade progression by comparing the number of grades passed by age thirteen between treatment and control groups. Again, no differences appeared in aggregate but when narrowing the sample to consider only women, there appears to be a treatment impact as women who received atole during early-life had completed more schooling grades than those in the control group. Reading comprehension was improved by treatment across the sample. The treatment group attained a score on a reading assessment that was 17% higher, on average, than members of the control group. Cognitive ability, as measured by Raven's test¹⁰⁶, also reflected an improvement in outcomes for the treatment group with the effect size measured at 8%.

¹⁰⁴ These included size, nutritional status, ethnicity, diet, access to health care, and demographics, among others (Maluccio et al., 2006).

¹⁰⁵ The absence of protein was the major difference between the two as it was thought the protein deficiency was the main target of opportunity for improving early life development (Martorell et al., 1995).

¹⁰⁶ A standard non-verbal assessment used to test cognitive abilities among young children by using images that display various patterns.

4.3 Simulating the impact of improving child grants

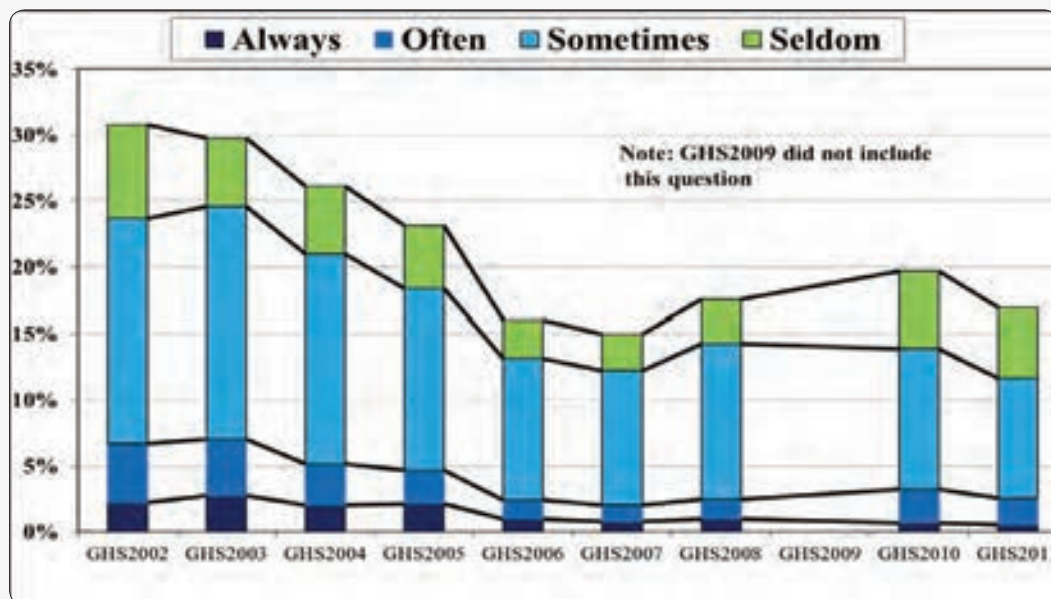
The analysis in Chapter 3 has shown the importance of, inter alia, social grants and education in alleviating poverty and social exclusion of children. Evaluations of the CSG (discussed above) have, in particular, found that it has a positive impact on the welfare of the poor. This section therefore contains policy simulations related to these two fields. As the social grant system is functioning relatively well, simulations in this field are relatively confined, but those in education are of a larger scope, given its central importance in overcoming poverty and social exclusion.

It is widely accepted that the CSG was the major cause of the observed decline in money-metric poverty between 2000 and 2010 (Leibbrandt et al., 2010; Van der Berg, Louw and Yu, 2008). A favourable economic climate during most of this period (before the world recession of 2008) also contributed to improvements in some economic outcomes. However, simulations using the 1995 IES have shown that the approximately 2 million jobs that had been created in the period up to 2008 would not have affected poverty levels greatly, as most of those jobs went to people with the highest levels of education, skills and experience, and these were mostly members of households which had already been non-poor to begin with. On the other hand, the grants had an unambiguous benefit in terms of money-metric poverty: even if there had been no targeting, the considerable expansion of grant income would have affected poverty dramatically.

Thus, even if the R18 billion expansion of grants between 2000 and 2004 had been equally distributed to every person in the country, i.e. if it had been untargeted, this amount of about R400 per capita in 2000 rand terms would have meant that households falling within R400 per capita below the poverty line would have been moved across the line, i.e. out of poverty. The impact would have been similar to the effect of reducing the poverty line by the same amount. Because of its large magnitude, such untargeted expenditure would have decreased poverty by 5 percentage points, from 39% to 34%, given the poverty line of R3000 per capita in 2000 rand values used for that study. (Van der Berg, Louw and Yu, 2008: 73). So even under this completely unrealistic and conservative assumption, that there is absolutely no targeting of the grants, grants would have decreased poverty greatly. Allowing for the fact that there is in practice quite accurate targeting, the grants would have had an even greater impact on poverty measured in money terms. That is why there appears to be unanimity amongst researchers that poverty declined between 2000 and the global recession in 2008, with the expansion of the CSG as the major factor in bringing about this decline.

One of the factors that is probably causally related to this decline in money-metric poverty associated with the expansion of the grants is hunger. Figure 4.3 shows that reported hunger amongst children declined very strongly between 2002 and 2007, though this effect was reduced after the world recession. Nevertheless, it appears that 2.4 million fewer children went hungry in 2008 than in 2002, judged by these survey responses. (The question asked of respondents in the survey was whether a child in that household had gone hungry in the past year, and how frequently; only those who indicated that it did occur are shown.) The most likely reason for this decline was the expansion of the CSG.

Figure 4.3: Reported frequency of hunger among children in the General Household Surveys, 2002 - 2011



Notes: Own calculations using GHSs

The likely impact of the grants on both money-metric poverty and on some non-money-metric measures, such as hunger and nutrition, is thus undeniable. This effect was also, at least in relative terms, largest amongst the poorest. Some simulations of the effect of removing the grants on poverty show that clearly.¹⁰⁷ However, further expansion of the grants cannot be considered as a realistic long-term strategy in dealing with poverty, because of fiscal constraints (the money for paying the grants has to come from economic activity, which would first have to expand), and because the danger of perverse behaviour incentives becomes greater when grant values rise.

It is interesting, however, to investigate the case for even further expansion of the grant system as a policy experiment. This expansion can be done firstly by ensuring that those currently eligible for the grant do receive it, i.e. overcoming the impediments to grant receipt amongst the eligible. A second case would be to increase the value of the grant substantially. The simulations that are undertaken here use, as policy experiments, the impact on poverty of extending the CSG to all eligible children, and doubling the value of the CSG.

In all grant systems there are errors of exclusion (poor people who do not benefit) and errors of inclusion (non-poor people who do benefit), as targeting can never be perfect. The means test and its application often play an important role in this regard (Subbarao et al., 1997). Also, some of the errors of exclusion may derive from administrative impediments (including the lack of identity documents), information problems, and costs associated

¹⁰⁷ Such simulations are purely comparative static exercises that do not, however, consider that individual and household behaviour may have been affected by receipt of the grants. For instance, residential choices and household formation and dissolution as well as participation in the labour market may have been influenced by the grants.

with distance and the time required for applying. Such problems are likely to be larger amongst poor people, especially those socially excluded. Overcoming these problems is essential for reducing such social exclusion, both to provide additional financial resources and to better integrate some socially excluded households into the social security system.

Simulating the effect of various grant scenarios on poverty experiences is difficult due to two data problems. Some surveys, such as the NIDS and the IES, completely under-capture grants and are thus not useful for this purpose, although their income and expenditure data are better for modelling poverty impacts. The alternative data source, the GHS of 2012 that will be used in this simulation exercise, is prone to under-capture income and thus it exaggerates grant eligibility. Moreover, it is impossible in the GHS to determine the income of the caregiver and spouse (often the parents) of the child, so the whole household's income is considered, while the means test only considers the income of the caregiver and spouse.

Table 4.2 shows the distribution of the sample of age-eligible children from the GHS of 2012. The means test cut-offs in terms of income were used to estimate eligibility for the grant. From this perspective, therefore, this is an upper-bound estimate. On the other hand, the income that is considered for eligibility of the grant is only that of the caregiver and spouse

Table 4.2: Receipt and eligibility of Child Support Grant, 2012

Receipt of Child Support Grant	Eligible	Non-eligible	Eligibility uncertain	Total
Receive CSG	9 564 576	1 396 842	31 024	10 992 442
Do not receive CSG	3 139 713	3 443 022	641	6 583 376
Unknown whether receiving grant	-	-	998 331	998 331
Total	12 704 289	4 839 864	1 029 996	18 574 148

Notes: Own calculations using GHS 2012. Eligibility based on applying age criteria as well as the means test though considering household income rather than income of the caregiver and spouse. Uncertain eligibility is where income was not captured in the survey; unknown receipt is when no information was recorded about receipt of the grant.

The figure of 10.99 million grants captured in the GHS data is quite close to the 11.30 million paid out in December 2012, according to the closest available report to the GHS survey date of the South African Social Security Agency, SASSA (2012). A substantial number of children who appear to be eligible do not in fact receive the grant. If the data were accurate, that would be an error of exclusion amounting to almost one quarter of eligible children. However, it should be considered that the GHS greatly under-captures incomes. Whereas poverty, at a poverty line of R636 per capita in 2012, is estimated at 38.8% in IES for 2010/11, it is estimated to be 48.8% in the GHS, just one year later, because the GHS under-captures income. Also, if one considers where errors of exclusion are largest as proportion of all eligible children, it is much higher in the Western Cape and

in the fourth quintile of the GHS income distribution, not the areas where need is greatest. So eligibility, and thus errors of exclusion, is overestimated. For the same reason errors of inclusion are underestimated. The fact that it would appear as if errors of exclusion are greatest not amongst the poorer areas and households but in the Western Cape and in the fourth quintile of the GHS income distribution supports this conclusion.

If the errors of exclusion as determined from the GHS data are nevertheless taken at face value, the cost of eliminating them by paying the 3 139 713 additional grants would be R10.5 billion, i.e. a very substantial sum. (In 2012 grant values were R280 per child per month.) The effect would be to reduce the poverty rate in the GHS 2012 data from 48.8% to 47.1%, and the poverty rate amongst children even less, from 60.3% to 59.6%. Proportionately, the impact is slightly lower amongst the poorest, as reflected in the fact that more poverty-sensitive measures (the poverty gap ratio P1 and the poverty severity ratio P2) would drop more than the headcount poverty rate (P0), particularly amongst children.

There are some who advocate far higher grant values. Indeed a doubling of grant values, while also ensuring that all who are eligible according to the GHS data receive the CSG, would reduce poverty further, to 37.8%, i.e. a further 9.3 percentage points. The effect on children would be even greater. However, the cost would be astronomical, R53 billion more than the current level, and 46.9% of children would still remain below the poverty line. Moreover, any possible perverse effects of grants, which are contained when grants are relatively small, would increase greatly with any major increase in grant values.

In conclusion, although there is probably scope for improving grant administration and the interface with beneficiaries in a way that will enable poor people who are eligible for such grants to obtain them more easily, the effect on poverty numbers is likely to be relatively small, and a substantial increase in grant values does not appear viable. Improving grant access for the eligible is nonetheless important and thus receives further attention in the policy recommendations.

4.4 Simulating the effect of improving education in early grades

4.4.1 Educational deficits and their labour market implications

South African educational performance is abysmal and most children from disadvantaged backgrounds perform far below what can be expected from children in a well-functioning school system. To put that into perspective, in SACMEQ tests of Grade 6 learners in 15 countries in southern and eastern Africa, South Africa's performance is on average weaker than that of a number of far poorer countries, including Tanzania, Kenya and Swaziland. Moreover, children from poorer South African schools lag more than a year behind equally poor schools in the average SACMEQ country (other participating countries are Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, Tanzania, Uganda, Zambia, Zanzibar, and Zimbabwe). Other international tests (TIMSS, PIRLS) confirm the massive South African backlog with the developed and with most of the developing world.

The weak performance of the bulk of the school system at earlier grades is a significant cause of poor performance in matric, with poor children being especially prone to drop out earlier or to fail matric. Only about one in ten children in the bulk of the school system – the three poorest quintiles of schools – eventually reach matric and then achieve a ‘bachelor’s pass’ (formerly called a university exemption), and only 40% achieve any matric pass (own calculations from the 2012 Annual National Assessment (ANA) data). At the same time, good matric performance and access to and success at university are crucial for labour market prospects. The typical matriculant who does get a job earns one quarter more than someone who only passed Grade 9, and a graduate earns three and a half times as much as someone who has only matric. Academic skills are highly rewarded in the labour market, and also increase the probability of getting a job. Also, in the age group 25 to 30 the probability of being employed is only 51% for someone who fails matric, 64% for someone with matric, and 92% for someone with a degree, according to 2011 census figures.

While a good education is crucial for success in the labour market, the prospects of a good education for the poor are slim. Thus the way the school system operates perpetuates inequality in learning outcomes, rather than overcoming it. The following sub-section illustrates this using data from the 2012 ANAs and then uses this same data to simulate what could be possible if learning outcomes for the poor could be improved in the early grades.

4.4.2 Simulating educational outcomes

The part of the educational system that formerly served largely white and Indian children performs far better on international tests (Reddy et al., 2012). Non-over-aged white and Indian children can be regarded as a ‘norm group’ whose performance in Grade 8 is roughly in line with that of countries that performed near the international mean in TIMSS, such as the United Kingdom, Australia or New Zealand.¹⁰⁸ Using this norm group’s performance as a benchmark, the performance of all children in the ANAs at different grades can be evaluated in all the ANA tests. (In TIMSS, the ‘low international benchmark’ is set at 420, i.e. 80 points or 0.80 standard deviations below the international average, which is also assumed to be approximately the average for the norm group.)

In the bottom three quintiles of the school system¹⁰⁹, the number of children who are not over-aged and who perform within one or two standard deviations of the norm group’s average drops steeply across the grades (Table 4.3, Column 3). Between Grade 1 and Grade 4 this proportion roughly halves, and thereafter fluctuates at low levels. The number in Grade 9 (around 288 000) is only slightly above the quarter of a million children in these three poorer quintiles of schools which passed the matric examination in 2013. Presumably most of those who passed matric are drawn from this group of children. The numbers that are not over-aged and perform at most one standard deviation behind the norm group falls across the grades, so that the number achieving this benchmark in Grade 9 is just over one quarter of the Grade 1 number. The 120 993 children (Table 4.3, Column 1) from poor schools who are not over-aged and perform within one standard deviation of the norm group, and thus

¹⁰⁸ These schools, which have deracialised considerably – only about half the children in former white schools are white – perform at roughly the international mean of the countries that participated in the Grade 8 TIMSS study in 2011 (Reddy et al., 2012: 9). However, South African students were tested in Grade 9 rather than in Grade 8, thus implying that these former white and Indian schools are on average about a year’s learning behind what could be considered an international norm group. However in ANA 2012, white and Indian grade 9 children within these schools and who were not over-aged performed 0.64 standard deviations (more than one year of learning, if one takes that to be about 0.40 standard deviations) above the performance of the part of the school system (historically white and Indian schools) that they dominantly find themselves in. Thus children of these two groups and of appropriate age can be considered as a norm group against which performances on the ANA tests can be evaluated. Their performance is roughly in line with that of countries that performed near the international average in TIMSS, such as the United Kingdom, Australia or New Zealand

¹⁰⁹ As quintiles are not equally sized, 71% of children are in these three quintiles in the first two grades.

above the low international benchmark, are presumably largely those that would go on to perform well enough to achieve university exemptions (bachelor's passes), as 48 000 matric students did in 2013.

Table 4.3: Number of non-over-aged children in Quintiles 1 to 3 schools performing within one or two standard deviations of the norm group in mathematics in ANA 2012

Grade	Above or not more than one SD below norm group (i.e. 'low international benchmark')	Between one and two SD of norm group	Total: Within two SD of norm group
Grade 1	454 131	109 936	564 067
Grade 2	310 244	126 804	437 048
Grade 3	244 431	110 863	355 294
Grade 4	173 781	107 586	281 367
Grade 5	150 509	110 692	261 201
Grade 6	156 858	145 155	302 013
Grade 9	120 993	166 783	287 776

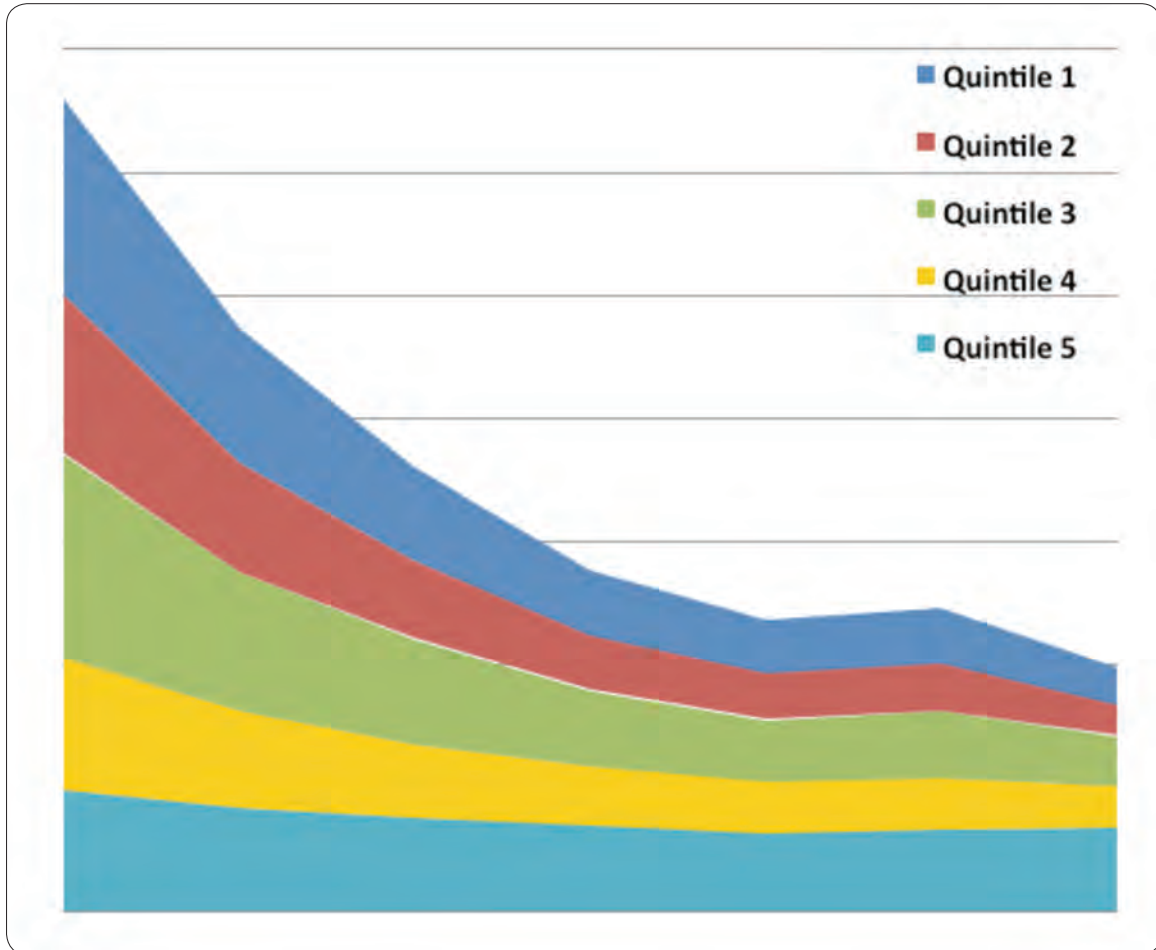
Notes: Own calculations using ANA 2012.

Thus it becomes clear that, for a large proportion of South African children, the chances of acquiring the skills required to function effectively in a modern economy and labour market, and in this way to avoid a poverty trap, have already been strongly eroded in the primary school phases. Although this relates to mathematics, a statement by Trong (2010) regarding the Grade 4 PIRLS (Progress in International Reading Literacy Study) assessment is useful to consider: that children who do not reach even this low benchmark by the fourth grade are at serious risk of never learning how to read.

Ranged on an international scale, it appears that children who wish to achieve university exemptions (a 'Bachelor's pass') need to be close to the international norm and thus the norm group. It is likely that they would be drawn from those who are within less than one standard deviation of such a norm, judged by their Grade 9 performance.

Figure 4.4 shows that the number of children who are not over-aged and who perform within one standard deviation of the norm group falls sharply through the primary and secondary grades. Most worryingly, this drop is at its steepest in the poorest schools, quintiles 1 to 3.

Figure 4.4: Number of non-over-aged children performing within one standard deviation of the norm group by grade and quintile in ANA Mathematics, 2012



Notes: Own calculations using ANA 2012.

Table 4.4 presents the same data as Figure 4.4, but in addition shows that the 'retention rate' or the number of non-over-aged children meeting this performance criterion in Grade 9 is on average only 30% of the number on track in Grade 3. Particularly pertinent to this report are the large differences in retention rates, ranging from 19% and 20% in the bottom two quintiles of schools to 69% in Quintile 5.

Table 4.4: (Next page) Number of non-over-aged children performing within one standard deviation of norm group by grade and quintile in ANA Mathematics, 2012; and matric exemptions and passes by quintile, 2013

Grade	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Total
Cohort size entering school	227 906	182 223	228 917	147 001	126 072	912 119
On track: Children not over-aged and performing within 1 SD of grade norm:						
Grade 1	160 055	129 391	164 685	108 034	97 468	659 633
Grade 2	109 182	88 526	112 536	78 852	83 471	472 567
Grade 3	75 472	64 297	85 290	60 720	74 408	360 187
Grade 4	53 616	44 527	61 608	48 256	69 413	277 420
Grade 5	43 455	38 622	49 703	42 133	63 012	236 925
Grade 6	44 033	39 410	54 233	42 870	65 197	245 743
Grade 9	30 615	25 549	41 319	33 685	67 176	198 344
On track in Gr4 as % of cohort	24%	24%	27%	33%	55%	30%
On track retention from Gr1 to Gr9	19%	20%	25%	31%	69%	30%
Grade 12 (ignoring age):						
Attain bachelor's pass	21 068	26 931	30 408	26 225	55 181	159 813
Attain any pass	74 537	87 482	91 312	67 107	95 895	416 333
Conversion rate: bachelor's passes as % of Gr 4 number	39%	60%	49%	54%	79%	39%

Notes: Own calculations using ANA 2012; Matric data from DBE, 2014. 2013 National Senior Certificate Examination – Technical Report. DBE: 72, Table 15. Note that about 5% of students in the matric results could not be allocated to quintiles.

The final row of Table 4.4 offers another way to think about the relationships between the numbers in this table. This 'conversion rate' simply reflects the number of bachelor's passes as a percentage of the Grade 4 children who are not over-aged and perform within one standard deviation of the norm group. This ratio again varies across the quintiles, but even the bachelor's passes produced by the richest and most successful quintile, Quintile 5, are only 79% of the number of non-over-aged children performing above the low international benchmark, i.e. within one standard deviation of the norm group. Thus, to take Quintile 1 as an example, one can see that it is imperative that schools in this group improve the conversion rate, which is half that of Quintile 5, but even more imperative is that these schools sharply increase the number of children who are on track to perform, i.e. who by Grade 4 have not had to repeat and who are still performing above the low international benchmark, i.e. within one standard deviation of the norm group. To put this in perspective, the performance improvement required to double this number would mean that those currently scoring 35% in ANA 2012 mathematics would have to achieve 50% on the same test. That requires considerable improvement, but is not impossible if sufficient attention is given to that goal.

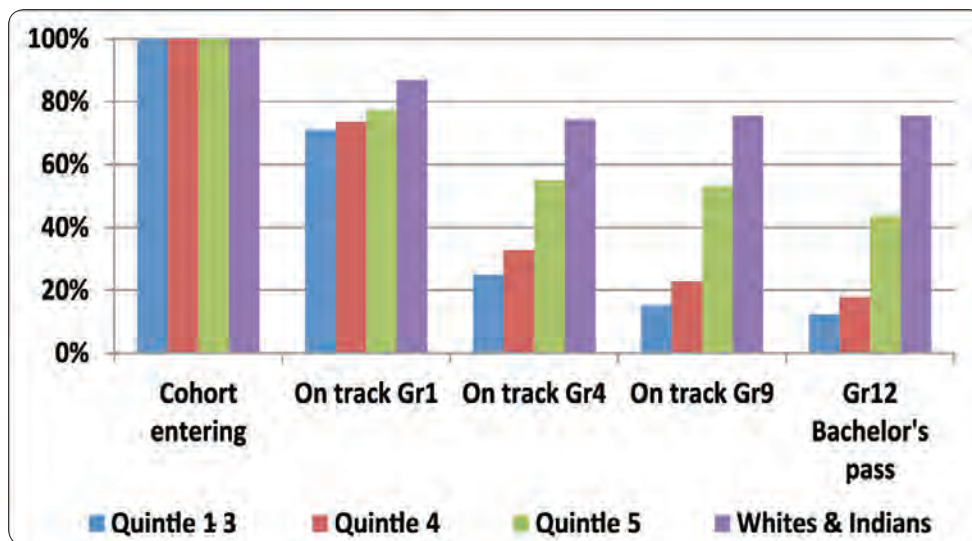
Figure 4.5 summarises some of the figures presented in Table 4.4, but in addition shows the progressions for whites and Indians as an indication of the stark differences in performance across the system. The percentage of children entering school who are broadly 'on track' in Grade 1, defined as performing within one standard deviation of the

norm group and not being over-age, is already considerably lower than the percentage of those entering school, especially in the poorest three quintiles. It is possible that this Grade 1 test is not the most accurate measure because of the difficulties of testing at such a young age, but even if one considers the Grade 2 performance, it is clear that a substantial proportion of children in the poorest schools are already lagging behind at the beginning of primary school.

The next decline is that between Grades 1 and 4. Once again, it is apparent that there is a considerable drop in the numbers of those who are on track between these grades. This makes it clear that the largest erosion of the base from which success, in terms of passing matric and continuing to tertiary education, should spring, takes place in poor schools in the early phases of the primary education system, if not before.

There is still further erosion between Grade 4 and Grade 9, and then again between Grade 9 and Grade 12. The extent of this erosion is smaller, however, as most of the erosion of the base has already taken place by Grade 4.

Figure 4.5: Numbers on track in various grades in ANA Mathematics 2012 and number of bachelor’s passes in 2013 relative to the size of the entering cohort for various groups (entering cohort set to 100)



Notes: Own calculations from Table 4.2.

If one looks at the chain from birth to successful completion of matric with good labour market prospect, it is useful to think in terms of the links that broadly follow the school phases:

- Birth to entry into school
- The foundation phase
- The intermediate phase
- The further education and training phase.

The data reported here suggests that the reasons for children attending poor schools and lagging behind others can be found in the home environment and the weak performance in the foundation phase. That is undoubtedly where the focus of attention should be: to give children the grounding that will enable them to achieve greatly improved results at the end of school, with more school leavers equipped to enter universities and the labour market with a solid school background.

The main recommendations in Chapter 5 for the field of education derive from the simulations that have been described in this section.

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The research presented in Chapter 2 indicates that South Africa has made considerable progress in reducing the extent of poverty and social exclusion, and their effect on children. However, analysis of the most recent data shows that much still needs to be done to counter the debilitating deprivation experienced by many South African children. Chapter 1 highlighted several factors that operate at the early stages in life to hold people in a state of poverty, while Chapter 4 discussed local and international interventions targeting these factors. This chapter puts forward recommendations for policies in critical areas that affect poverty and social exclusion. In many cases this means finding ways to carry out existing policies, as the problem often lies not with the policies, but with poor implementation and the weak accountability structures, incentives and organisational framework that hinder implementation. A striking finding in the report (Chapter 3) is that despite the near universal school enrolment rates, South African children receive exceptionally poor quality education in many parts of the schooling system. This example (see section 3.4.3) highlights the problem of 'superficial progress' made by government departments. Addressing these institutional obstacles to real developmental progress presents an important challenge that, while not addressed comprehensively in this report, must nonetheless be highlighted along with the policy recommendations that follow in Section 5.2 below.

5.1 CURRENT IMPLEMENTATION FAILURE AND ADMINISTRATIVE INCAPACITY

The declines in measured poverty observed in South Africa between 1994 and 2010 should be viewed in the context of benign global and local economic conditions during most of the first decade of this century. Favourable economic conditions saw the country embark on its longest sustained period of growth on record, which facilitated an increase in the number of employed by 2.7 million between 2002 and 2008. Persistent high economic growth meant that greater state revenues were available for social transfer payments that contributed greatly to reduced poverty. Efficient government departments such as the South African Revenue Service and the National Treasury ensured optimal revenue collection and higher expenditure allocations that were largely pro-poor. Viewed in this way, the present and future challenges to state directed welfare improvement are all too clear. Economic conditions, both local and globally, are less accommodative following the 2008 international financial crisis. South Africa is furthermore perceived as a 'high-risk' investment destination. Locally, worker relations do not seem set to improve and perceptions of corruption have been elevated, reducing trust in the state. As a result of these and other circumstances, growth projections for the economy as well as government revenue are low. Further welfare improvements thus can no longer depend on greater revenue collection and allocation but will rather have to be realised through efficiency enhancements within spending departments.

While some government departments, such as the National Treasury, are often lauded for their efficiency and professionalism in executing their functions, others are criticised for implementation failure. Persistent implementation failures arise due to an incentive structure that does not hold inefficient systems, organisations and agents (including governments) involved in development to account (Pritchett et al., 2010). The National Development Plan recognises this by emphasising the important role that strong and professional government institutions play in service delivery and in breaking poverty traps. Although substantive resource shifts to poorer schools and pro-poor social spending in various forms have been a focus since the 1980s and particularly the 1990s (Van der Berg and Moses, 2012), South Africa still performs poorly in important growth drivers such as the quality of public education and health services. There is evidence that state capability, particularly in poorer provinces, is partly to blame with a

number of researchers (see for example Taylor, 2011; Shepherd, 2011; Solarin & Black, 2013) suggesting that poor management of resources, rather than the amount of resources, constrains delivery.

The education system offers an illustration of how more effective administrative management in a government department can demonstrably produce better results, and that what a provincial department of education does, partly through its district offices, matter appreciably for the quality of education. A study by Gustafsson and Taylor (2013) exploits a 'natural experiment', the 2005 border changes, to observe the performance of the transferred schools. (Only a brief outline is provided here, with a more detailed discussion to be found in Appendix 5.1.) The study found that the Grade 12 performance of 29 schools that moved from the North West to Gauteng improved considerably, suggesting that these schools benefited from the administration of their new province. Interviews revealed that the schools that were transferred benefited from more textbooks and videos of science experiments after the transfer. An unanswered question is how Gauteng has managed to maintain better levels of resourcing. One potential explanatory factor is the observation that very different practices and work cultures seem to exist in the district offices of the two provinces. In Gauteng district officials are reportedly proactive, visiting schools frequently and putting pressure on principals and teachers to achieve better results. They also consider input from school staff and efficiently take care of funding and procurement matters. North West district offices are reportedly less responsive to the needs and requests of their schools. Further evidence of differences in institutional quality between the two provinces emerged from a Department of Basic Education survey (DBE, 2013c) which indicates that school principals in North West are among the most dissatisfied in the country with the quality of district support they receive. In contrast, Gauteng's principals are highly satisfied with the support they receive from districts, particularly for the provision of educational materials.

What this natural experiment shows is that administration can make a difference to service delivery, and that it differs in important ways across the system. Improved service delivery can make a major difference to the situation of children caught in poverty traps and suffering from social exclusion.

The development of institutional economics and the application of randomised control trials have focused far more attention on accountability structures as a potentially important factor in affecting the quality of service delivery. These are of crucial importance in improving the capability of the South African social delivery system and therefore require greater attention. These issues were also addressed in the National Development Plan. Detailed recommendations in this regard are, however, beyond the scope of this report, and therefore only a brief discussion of institutions and service delivery is reserved for Appendix 5.2.

5.2 POLICY RECOMMENDATIONS

The analysis presented in this report makes it clear that South Africa has made considerable progress in reducing the extent of poverty and social exclusion, and their effect on children. As mentioned in the introduction, the country's political transition changed the social context within which these factors occur. At the political level, the dismantling of apartheid opened up opportunities for the majority of the population to participate more fully in society, including full participation in the labour market. Important social trends such as rural-urban migration and rapid fertility decline also gave many people new opportunities. Improved formal housing and municipal services provision enhanced the circumstances of large numbers of citizens. Educational expansion ensured that most children attend

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school until at least the age of sixteen. The massive expansion of the grant system is now a vital source of income for many poor families and has decreased both money-metric poverty and hunger among children.

However, many people still suffer the double fate of the poverty trap and social exclusion. Although the acceleration of economic growth has decreased poverty and expanded opportunities, many of the unemployed have still not been drawn into the labour market, and those excluded are typically also marginalised in other ways. These are often the most poorly educated, still outside the mainstream, excluded not only from many economic opportunities but also from full participation in society. Children born into such families are most likely to be caught in the poverty trap. The poorly functioning school system leaves them few opportunities to get a good education. When they leave school, they are unlikely to find or to hold a job, and if they do find one it is not likely to be well paid or secure.

Compounding these problems are the social pathologies that the new South Africa has yet to overcome: crime, household violence, abuse of women and children, and substance abuse.

While there are many areas in the social delivery system which need to be improved, this report will focus on making recommendations on certain key interventions. In many of the other areas, the problem lies not with the policy, but with the poor implementation. This report has dealt with poverty traps that are amenable to intervention and primarily those that operate at the micro to medium level, with special attention to five areas – health, education, wealth and assets, social networks and family, and geography – where an enabling environment could help children to escape inherited poverty. These are dealt with in the policy recommendations below.

5.2.1 Improving health and nutrition

Access to health services has improved considerably, but the quality of health care and the efficiency of the health services leave much to be desired. This is part of the major service delivery problem that plagues South Africa's public services.

Many of the concerns about health outcomes for poor children have their origin in other areas. Good sanitation, clean water, proper housing, adequate nutrition and good nutrition practices are all essential for children's health. Much attention is being paid to housing and physical infrastructure, but obstacles of implementation impede progress. The need for such infrastructure, with consequences for children's health, is particularly urgent in many rural areas. Problems that affect children are interrelated. Thus, for instance, inadequate provision of clean water and sanitation for ECD facilities not only damages children's health but also impedes their education.

Child nutrition has benefited from the National School Nutrition Programme that is now reaching most schools. ECD facilities also offer feeding schemes to children, but the food provided is often nutritionally deficient. The Department of Social Development must consider ways to improve and monitor the quality of food provided to young children at these facilities.

Nutrition outside the facilities is also still a major problem. The generally low prevalence and short duration of breastfeeding in South Africa, despite its known benefits, requires more attention. There has been mixed success in attempts to encourage exclusive breastfeeding up to six months. A scheme described by Bland et al. (2008) showed that offering mothers more information and support can have a significant effect on rates of exclusive breastfeeding.

The scheme that was used trained lay counsellors and was therefore more affordable. Along similar lines, but targeted at improving the nutrition of young children, the projects described in the Latin American case studies and the Philani Mentor Mothers Project discussed in Section 4 above, suggest that such information and support can improve the nutritional choices mothers make and thus the health and wellbeing of babies and toddlers. Scaling up of such approaches should be explored and tested.

It is difficult to implement nutritional interventions for young children not attending ECD facilities. The expansion of the child support grant (CSG) has clearly helped to reduce child hunger, but hunger levels are still too high and the quality of nutrition requires more attention. Again, information campaigns may be an important way of dealing with these aspects of the problem.

5.2.2 Improving educational foundations

The poor educational foundation which traps many poor children in poverty as early as the end of the Foundation Phase in school is the most pressing problem to be addressed in education. In many respects, solving this problem is also the most important long-term solution for eradicating poverty and ensuring the social mobility that will enable children to rise above the economic circumstances they are born into.

Any intervention to improve education in South Africa needs to occur as early as possible in a child's life. Many poor children start with a severe disadvantage because they do not receive sufficient social, emotional and cognitive stimulation in early childhood. They then enter primary schools that are mostly unable to equip them with the skills needed for success in life, let alone make up for the large learning deficits they have already accumulated.

When faced with limited resources (both physical and human) and a choice of where to intervene in the schooling system, the advice from both the local and the international literature is unequivocal: the earlier the better. Focus must be on the preschool years and the primary grades not only because underperformance is so widespread in these phases but also because remediation is most possible and most cost effective when children are still young. The human brain is most malleable in early childhood and thus particularly susceptible to benefit or harm. The focus must be here also because the cumulative negative effects of learning deficits (particularly for vertically integrated subjects like mathematics) make full remediation impossible if the intervention is too late (i.e. in high school). Nobel Laureate Professor James Heckman summarises these arguments succinctly:

Policies that seek to remedy deficits incurred in early years are much more costly than early investments wisely made, and do not restore lost capacities even when large costs are incurred. The later in life we attempt to repair early deficits, the costlier the remediation becomes. (Heckman, 2000: 5)

The simulations in Sections 4.4 and 4.5 above strongly suggest that these problems caused by the low quality of education provided to the poor emerge very early, and by Grade 4 (when the Foundation Phase has just been completed) the base of children who are ready to cope with the higher educational phases successfully has already been deeply eroded. Though problems in educational quality do not end at the lower levels, it is here that educational quality deficits must first be tackled. Two areas for intervention are recommended, namely (i) improving ECD interventions to deal with school readiness, and (ii) strengthening the Foundation Phase in schools.

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Educational interventions: Early childhood development and school readiness

Community based ECD facilities have expanded dramatically with the extension of government subsidies to such facilities. However, these facilities do not address child needs in the very early stages, the 'first 1000 days' (including the period in the womb) that are regarded as so crucial for early physical, emotional and cognitive development. Government is currently still working at finding appropriate institutional mechanisms for assisting with development in this sensitive period. Nutritional support for pregnant mothers and children is important, but it is not clear how to provide it. Child grants help to reduce the financial burden of children, but cannot ensure that parents spend the money well in terms of child needs. Information campaigns about nutrition and child development remain immensely important. The further development of policy in these areas remains a priority.

The following are some recommendations for ECD facilities:

1. Strengthen basic monitoring of preschools to support both planning and implementation. Such basic monitoring is particularly weak in South Africa. No clear plans appear to exist to deal with this situation, yet it needs to be dealt with urgently as basic monitoring systems are a prerequisite for equity, transparency and effectiveness in the ECD sector. New systems need to be designed with a careful consideration of their costs relative to what they deliver and how they can build on or extend existing systems.
2. In expanding preschool coverage, particular attention should be paid to quality. Enrolment levels of children in ECD facilities are relatively high. However, the available data suggest that the quality of inputs, as well as educational, health and social outcomes require special attention.
3. Formulate policies in clear and practical terms. The release in 2013 by the Department of Basic Education of an official curriculum, albeit a pre-final one, for children under the age of 5 is a major step forward. However, policies on ECD remain unclear and fragmented, according to the government's own reports. For instance, policies on how to distinguish the resourcing, nomenclature and learning aims of the different levels of preschool are non-existent or not sufficiently clear.
4. Take notice of innovative ECD delivery approaches, including strategies for supporting parents directly. As indicated by the NDP, innovation is important. Here South Africa could learn from non-traditional models of ECD aimed at educating parents themselves in how to ensure that young children develop as they should at the preschool stage.

The relatively rapid roll-out of the Grade R programme and community based ECD has contributed to widespread concern about the low quality of learning and teaching in both these parts of the system, and especially in schools and facilities that serve poor children. The findings and recommendations emanating from the National Treasury research (Technical Assistance Unit: National Treasury, 2008), the research for the Gauteng Department of Education (2009), the Eastern Cape Provincial Department of Education (2008) and the SAIDE Grade R research project (2010) all point to issues of this nature.

Research suggests that two key quality dimensions need attention. The first is teachers. Teachers' training, quality and support, their qualifications and the pedagogical rigour of these, as well as their knowledge of how young children learn and how to best facilitate learning are essential requirements for quality education. In interviews with teachers, Excell (2011) found that few practitioners had a proper understanding of how to optimise children's learning through a play-based approach. Opportunities for in-service training should be extended to all teachers

with practical strategies for supporting early learning. Opportunities to observe best teaching practices should also be provided. This needs to be supported with ongoing on-site mentoring. There is also a need for evidence-based early childhood educational content in all ECD qualifications. Finally, encouragement, both pecuniary and non-pecuniary, should be given to retain teachers and practitioners in Grade R or in ECD.

The second quality dimension that needs attention is practical curriculum guidelines and standards and teachers' knowledge and understanding of these. Ongoing structured curriculum support for teachers is recommended with regard to the implementation of the prescriptions of CAPS (the Curriculum Assessment Policy Statement) in Grade R, particularly with practical ideas on how to achieve the stipulated learning outcomes. Although physical factors, such as cleanliness and a safe environment, are already assessed in the formal registration processes for community-based preschools, the focus on children's development and learning should be increased. An assessment of 70 preschools in five provinces found such a lack of educational materials that ECD practitioners did little more than look after the children (De Witt 2009).

Common tools should be developed to assess children's language, literacy and mathematics development in ECD and Grade R, to track progress in learning outcomes. Indicators and measures of quality need to be established for centres that can also be used in monitoring such centres. Cognitive testing before Grade 1 is complex as this often needs to be individualised, thus it is not desirable to expand the ANA or similar testing to Grade R or ECD centres. However, systemic testing of a large enough sample of children to draw conclusions about performance and progress would assist tremendously in improving the quality of early learning in both ECD centres and Grade R. This can further assist in overcoming the learning deficits that many children already have when they enter Grade 1.

Finally, support should be given to strengthening the role played by home learning environments, including awareness-raising campaigns to assist parents in supporting early learning. A practical step would be to make storybooks in all the country's official languages more widely available.

Educational interventions: Foundation phase

To focus attention on the Foundation Phase, a small set of clearly understandable and measurable goals should be developed and then widely disseminated to parents, teachers and government officials. These goals should focus on the basic learning outcomes that every child should master, with clear age- or grade-related benchmarks defining when children should reach them. To provide one example, Brazil's Ministry of Education has the following core education goal for primary schooling: 'Teaching all children to read and write by the end of the third year of basic education at the latest' (MoE Brazil, 2012:4). Given its multiplicity of official languages, South Africa could add 'in their mother tongue' to the above goal. Local and international evidence shows that the acquisition of early literacy skills is fundamental for further learning and thus a wise overarching goal for the Foundation Phase. Furthermore, the ability to read is relatively easy to assess and, since the reported adult literacy rate in South Africa was 89% in 2009/10 (UNDP, 2011), most parents, even if poorly educated, should be able to monitor whether their children can read. An important reason for setting and publicising such a goal is to bring parental and teacher expectations in line with the grade-appropriate minimum standards. The 500+ page CAPS document for the Foundation Phase can be overwhelming for teachers and it would be unreasonable to expect most parents to read or understand the full document. Setting simple measurable overarching goals provides a focus for interventions, initiatives and parent-teacher interactions.

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Thus it is recommended that South Africa adopt a single central goal for the Foundation Phase, which should be that every 10 year old child should read fluently in their mother tongue. This should be widely propagated through the media and public awareness campaigns, perhaps in a more succinct version, such as Every child should read. Every child and parent should be able to demand this as a right from the school system, and the focus of all activities in schools and the administration of schools should be to ensure that this right is fulfilled. This does not mean that other important goals of the Foundation Phase, including numeracy or the acquisition of English, are neglected, but simply that this is a central goal that everyone can agree upon and that is essential for reaching other educational goals.

In practical terms, this should entail that principals and teachers focus attention on achieving this learning goal by the end of the Foundation Phase. This should be part of the instructional leadership expected of every primary school principal, who should report quarterly to both the authorities and parents on progress in this regard. The monitoring activities of the provincial Departments of Education should be focused on the same goal. The workbooks that have been introduced to monitor coverage of the curriculum have not been used thus far to monitor such coverage at all. It is imperative that provincial departments understand this as a central priority. Provincial departments and the provincial Ministers of Education should be required to report annually on the progress towards achieving the goal that every child should read.

5.2.3 Increasing wealth and assets

Government has done much to provide a social safety net for the poor through the expansion of a strong means-tested unconditional social grant system. The grant system is regarded as one of the major contributors to the decline in child poverty since the turn of the century, and is also reflected in the decline in child hunger. Despite these noteworthy achievements, pockets of severe poverty still exist. The persistence of poverty in some regions is cause for concern, but as the analysis in Section 4.4 illustrates, is not due to imperfect targeting of the child support grant (specifically as it relates to unintended exclusion due to administrative obstacles). The simulation results in Section 4.4 also tentatively suggest that the expansion of the grant system within realistic budget constraints does not seem to be a viable instrument for lowering child poverty further.

Yet, for the sake of administrative and social justice and to ensure that the right to social security of the poor is upheld, it is important that administrative obstacles in the application process for grant receipt be eliminated. An important area that requires attention in this regard is the system of birth and death registration and provision of identity documents. These processes should be streamlined to make it easier for poor people to access the social grant system.

5.2.4 Strengthening social networks and family

Central to many of the problems noted in this report are weak social structures and associated problems of violence and abuse. The important role of social networks and of parenting is well established, but in policy terms, these are not areas where there are clear policy instruments.

In the case of absent fathers, it is important to consider initiatives that can challenge social norms. Action in regard to child maintenance payments may be a start, but is unlikely to have the desired effect if it focuses mainly on payments and does not have a more encompassing message. Failure to pay maintenance is merely a symptom of a larger malady.

On a related matter, the high prevalence of child maltreatment in South Africa – which is more widespread in poorer communities (Department of Social Development, Department of Women, Children and People with Disabilities and UNICEF, 2012) – may in some cases be symptomatic of parents neglecting their responsibility to ensure a safe and enriching environment for the development of their children's social and cognitive skills. Although conclusive data to support this conjecture are not forthcoming, suggestive evidence for it manifests in several other ways. Most basically, the institution of child protection laws and services (which largely emphasise protection as opposed to prevention) is aimed at enforcing accountability (Makoae, Roberts, and Ward, 2012). A survey of various public administrators and academics conducted by the HSRC (Human Sciences Research Council) also reflected a disturbing view of the South African public's attitude to child maltreatment (Makoae, Roberts and Ward, 2012). In answer to the question, 'How seriously does the general public perceive child maltreatment?', only 42% of respondents answered that it is generally viewed as serious and 51% believed that the general public perceived child maltreatment as 'usually not preventable'.

The Children's Act of 2005 that came into force in 2010 is an institutional response to the urgent need to deal with the problem of the maltreatment of children. Converting it into practice requires various instruments, including social welfare services. These issues are discussed further below.

Expanding the scope and reach of social welfare services

One of the central budgetary shifts observed since the political transition is the strong growth of spending on social welfare. This has been largely the result of an expansion of the social grant system. In contrast, social welfare services have been relatively neglected. Such services are funded at a provincial level and entail both services offered by the state and those that are run by private welfare organisations such as non-profit organisations. It is these private welfare organisations that have been particularly underfunded since the transition, despite the pressing need for welfare services. Reasons for this include a reduction in the flow of funds from international donors, low levels of local private funding, and limited provincial and national government subsidies. Provincial social development departments have also not been well funded and have thus tended to use their available funds mainly to fund their own work rather than to subsidise private welfare organisations to deliver services.

Private welfare organisations have been operating within constrained budgets and they can usually offer only low salaries to social workers and administrative personnel. The problem of the low supply of social workers is now being addressed through improved funding, but this does not deal with the underlying causes of the situation. As a consequence, welfare organisations' activities have been curtailed. Those best able to overcome the budgetary and staffing problems have either been those best organised or those who can most draw on volunteers. These volunteers are often people from middle class backgrounds who have a strong social commitment and private resources. Poorer people can seldom afford to spend much time on such work. This leads to a situation where the availability of welfare services is much greater where the network of volunteer workers and existing organisations is stronger. In practice, this has resulted in private welfare organisation work being concentrated in urban areas, particularly in the large cities, when the need for welfare services is greatest in rural areas. Moreover, the high compliance costs associated with obtaining funding from provincial government often render these funds unattractive or unattainable to private welfare organisations.

A better long-term funding dispensation for welfare services is therefore recommended, so that the network of social and community workers active in rural areas can be expanded and institutional services as provided for in the Children's Act can

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be fully provided and funded. This is in line with the recommendations of the Fiscal and Financial Commission (FFC, 2013), as reflected in their report on The provision and funding of child welfare services in South Africa, released in September 2013. The report highlights the low levels of government funding for child welfare services. Spending on child welfare amounted to R5.7 billion in 2013/14 compared to an estimated need of at least R12.9 billion for a low-level implementation of the Children's Act. The report also points to the vast disparities in funding of welfare services, with the per child expenditure in Kwazulu-Natal in 2011/12 of R81 being only one-fifth of that in the Northern Cape, at R412 per child.

However, as decisions on the funding of welfare services are largely taken at a provincial level and as these services for the poor have to compete with other provincial budget priorities, the funding of these services will remain under threat. Two steps are recommended:

1. The Fiscal and Financial Commission's (FFC) recommendation that the Department of Social Development should apply norms and standards for provincial departments for funding and providing welfare services for children, should be implemented. This could eventually be supplemented with norms and standards for the allocation of at least a minimum number of social workers or auxiliary social workers to different magisterial districts, based on their population size and perhaps also poverty criteria, to ensure that sufficient resources are provided to expand the reach and coverage of welfare services.
2. A conditional grant should be paid to provinces for funding a minimum number of social workers or auxiliary workers, both in their own employ and in private welfare organisations subsidised by the state, to undertake the work provided for in the Act and also to work with communities and families in strengthening parental roles and helping to prevent rather than simply treat the consequences of weak parenting and abuse of children.

5.2.5 Overcoming geographic difficulties

It is extremely difficult to change the spatial pattern of activities in a fundamental way in a national economy, the more so in an economy that is not growing rapidly. Thus it is unlikely that any attempts to shift economic activities closer to the rural poor in particular would bear fruit, and the cost is likely to be high. That means that a closer match between the location of jobs and the labour force would have to come about through migration.

Though jobs cannot be taken to the population on a major scale, it is essential that government service provision should target the population, wherever they may find themselves. This means that schools, clinics, hospitals, housing, water, sanitation and electricity should all be provided even to the poorest, and even in deep rural areas. This requires that government efforts at reaching into such areas should continue, and in particular that the support to municipalities to provide such services should continue at a national level and with support from the national treasury, as is currently the case. More can and should be done to provide adequate municipal services to all citizens, including the poor.

In conclusion:

There are many areas of concern when it comes to children being caught in poverty traps and excluded from mainstream social and economic life, but two in particular stand out: weak education and poor parenting. Addressing these problems should be a central concern in order to provide more of the country's children with a way out of inherited poverty and towards a more prosperous future.

5.3 Summary of policy recommendations

Contained in the narrative of the previous section are a number of specific policy recommendations. These are listed here to provide a succinct overview of such recommendations. More details on the reasoning behind these recommendations can be found mainly in Section 5.2, but also elsewhere throughout this report.

GENERAL:

Recommendation 1: Accountability structures within government institutions require greater attention to improve the capability of the social delivery system.

NUTRITION AND BREASTFEEDING:

Recommendation 2: The Department of Social Development should consider ways to improve and monitor the quality of food provided to young children at community-based ECD facilities.

Recommendation 3: Information campaigns should be targeted at mothers to improve nutrition for young children, especially those not attending ECD facilities.

Recommendation 4: Scaling up of approaches to offering mothers more information and support to encourage exclusive breastfeeding should be explored and tested because of their potential beneficial impact on nutritional choices that affect babies and toddlers.

PRESCHOOL EDUCATION AND GRADE R:

Recommendation 5: In expanding preschool coverage, particular attention should be paid to quality.

5a: Children's development and learning should receive greater priority in registration of community-based preschools.

5b: Clear and practical policies on ECD should be formulated regarding resourcing, nomenclature and learning aims of the different levels of preschool.

5c: Basic monitoring of community-based ECD centres should be strengthened by establishing indicators and measures of quality for such centres.

5d: Innovative ECD delivery approaches should be encouraged, including strategies aimed at educating parents about child development.

5e: Systemic testing should be introduced to assess and monitor the quality of early learning and the extent of learning deficits in both ECD centres and Grade R.

Recommendation 6: Teacher and ECD practitioner training, quality and support in early childhood facilities and schools should be improved. Thus:

6a: All ECD qualifications should contain evidence-based early childhood educational content.

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- 6b:** Opportunities for in-service training that provides practical strategies for supporting early learning should be extended to all Grade R teachers and ECD practitioners.
- 6c:** Grade R teachers and ECD practitioners should be provided opportunities to observe best practice teaching.
- 6d:** On-site mentoring of Grade R teachers and ECD practitioners should be provided.
- 6e:** Ongoing structured curriculum support to Grade R teachers should be provided with regard to implementing the Curriculum Assessment Policy Statement (CAPS), including practical ideas on how to achieve the stipulated learning outcomes.
- 6f:** Monetary and other incentives should be provided to retain good teachers and practitioners in ECD and Grade R.

Recommendation 7: Common tools should be developed to assess children's language, literacy and mathematics development in ECD and Grade R, in order to track progress in learning outcomes.

Recommendation 8: Support should be given to strengthening home learning environments, including awareness-raising campaigns to assist parents in supporting early learning. This should include making storybooks in all the country's official languages more widely available.

FOUNDATION PHASE EDUCATION (UP TO GRADE 3):

Recommendation 9: A small number of clear and measurable goals in terms of basic learning outcomes that every child should master at different ages in the Foundation Phase should be developed and widely disseminated.

Recommendation 10: A single central goal for the Foundation Phase should be set, that every 10 year old child should read fluently in their mother tongue. This goal should be widely propagated in a more succinct version: Every child should read.

10a: Principals of primary schools should be required to report quarterly to the authorities and to parents on progress in reaching the goal that every child should read.

10b: Provincial Departments of Education and the provincial Ministers of Education should report annually on the progress towards achieving the goal that every child should read.

SOCIAL GRANTS, MAINTENANCE PAYMENTS AND WELFARE SERVICES:

Recommendation 11: The provision of identity documents for young children should be streamlined to make it easier for poor people to access child grants shortly after the birth of children.

Recommendation 12: The state should enforce child maintenance payments by absent fathers more strictly, whilst also propagating the importance of parental responsibility for ensuring a safe and enriching environment for the development of their children's social and cognitive skills.

Recommendation 13: A better long-term funding dispensation for welfare services should be provided to expand the network of social and community workers active in rural areas and to provide the facilities and services prescribed by the Children's Act.

13a: The Department of Social Development should apply norms and standards for provincial departments to abide by when funding and providing welfare services for children, as the Financial and Fiscal Commission recommended in their 2013 report on The provision and funding of child welfare services in South Africa.

13b: Consideration should be given to eventually supplementing this with norms and standards for the allocation of at least a minimum number of social workers or auxiliary social workers to different magisterial districts, based on objective criteria, to ensure sufficient resources for expanding the reach and coverage of welfare services.

13c: A conditional grant should be paid to provinces for funding a minimum number of social workers or auxiliary workers, both in their own employ and in private welfare organisations subsidised by provinces. Such workers should also work with communities to help prevent rather than simply treat the consequences of weak parenting and abuse of children.

SPATIAL FACTORS AND MUNICIPAL INFRASTRUCTURE:

Recommendation 14: Adequate municipal and other infrastructure and services should be provided to all citizens, including poor households in rural areas and for ECD facilities and schools in such areas, as weak housing and physical infrastructure provision and inadequate provision of clean water and sanitation negatively affect children's health.

14a: National Treasury should thus continue its support of poor municipalities to improve service provision.

APPENDIX 2.1: COMPILING A MULTIDIMENSIONAL POVERTY INDEX (MPI)

Alkire and Roche (2011) provide a detailed discussion of the steps involved in the compilation of an MPI for the purpose of measuring child poverty using the Alkire Foster method.

In the first place, it is necessary to identify the unit of analysis. In this part of the report, as elsewhere, the unit of analysis will be the individual child,¹¹⁰ although many of the indicators will be measured at the household level.

Second, it is important to choose the most appropriate dimensions as well as the indicators that will comprise the MPI. Table A1 sets out the dimensions and indicators chosen as well as a detailed description of each dimension. The choice of dimensions and indicators have been primarily influenced by the aim to use and build upon previous work by Finn, Leibbrandt and Woolard (2013); availability of data within NIDS; and a desire to include measures that have been shown in other work to be accurate indicators of deprivation.

Third, the deprivation cut-off for each indicator needs to be established. Again the approach by Finn, Leibbrandt and Woolard (2013) is followed, though some of the cut-offs are adjusted in later estimations. The cut-offs applied have also been set out in the detailed description of each indicator in Table A3.1.

Fourth, after having chosen the indicators and their individual cut-offs, it is necessary to decide on the weights for each of the indicators. The approach weights each dimension equally, and then divides the weight of the dimension by the number of indicators per dimension. This means that the value of each dimension remains equally important, as it is clear that a non-poor child should ideally not be deprived in any of these dimensions.

The weights for each of the indicators are set out in Table 2.2 in the main text. For current purposes, three different specifications are used in order to compile three indices, labelled Index I, Index II and Index III.

Index I is identical to the index compiled by Finn, Leibbrandt and Woolard (2013). Their estimates are replicated, but while they focussed on individuals of all ages and only on 2010, the focus here is only on children. The index is calculated for all three waves of NIDS so as to compare the estimates.

Index II slightly adjusts the indicators used in Index I. In the first place, it excludes school enrolment, which is not a good indicator of deprivation, since school enrolment in South Africa is very high, especially in primary school.¹¹¹ Second, the individual cut-off for the schooling years indicator from is increased from 5 to 7 years. This is because at the end of 7 years, individuals would have completed primary school. Index II also includes cell phones in the asset ownership indicator, since this was excluded in Index I in line with the approach by Finn, Leibbrandt and Woolard (2013).¹¹² Last, Index II also includes a measure of adult malnutrition in measuring whether an adult OR child is underweight for the nutrition indicator, while Index I only looked at child malnutrition.¹¹³

¹¹⁰As in the rest of the report, children are defined as all individuals who were younger than 18 years in 2012.

¹¹¹ In the sample, it is around 98%.

¹¹² Cell phones were excluded because they compared the 1993 index (where cell phones were not in general use to the 2010 index).

¹¹³ Again, this was done because the 1993 data did not include anthropometric measures for adults.

Table A1.1: Description of the indicators of the Multidimensional Poverty Indices

Indicator Name	Children are deprived if they live in a household where ...	Dimension
Schooling 5 years	No household member has at least 5 years of completed education.	Education
Schooling 7 years	No household member has at least 7 years of completed education.	
Enrolment	At least one child of school-going age (7-15 years) does not attend school.	
School quality	At least one child of school-going age (7-15 years) attends a quintile 1, 2 or 3 school.	
Child Mortality	Any woman in the household has had a child aged 0 to 15 years who has died in the last 20 years.	Health
Nutrition – Malnourished	At least one child aged 6 months to 10 years has a World Health Organisation (WHO) weight-for-age z-score of less than 2 standard deviations below the mean.	
Nutrition – Underweight	At least one child aged 6 months to 10 years has a World Health Organisation (WHO) weight-for-age z-score of less than 2 standard deviations below the mean OR at least one adult aged older than 18 years has a BMI of less than 18.5.	
Nutrition - Obesity	At least one child aged 15 years to 19 years has a World Health Organisation (WHO) bmi-for-age z-score of less than 2 standard deviations above the mean OR at least one adult older than 19 years has a BMI of 30 or more.	
Cooking Fuel	Neither electricity, gas or paraffin is used for cooking.	Living Standards
Sanitation	There is no flush toilet or pit latrine available OR the household shares a toilet with another household.	
Water	The source of water is not from a pipe on site.	
Electricity	The household does not have electricity.	
Assets excluding cell phone	The household owns zero of the following assets: television, radio, telephone, fridge, bicycle AND the household does not own a vehicle.	
Assets including cell phone	The household owns zero of the following assets: television, radio, telephone, fridge bicycle, cell phone AND the household does not own a vehicle.	
Employment	None of the working-aged individuals (aged between 16 and 65) within the household are currently employed.	Employment
Subjective wellbeing	The average subjective wellbeing score of adults (aged 15 years and older) in the household in less than 5 points out of a maximum of 10.	
Hopefulness	None of the adults (aged 15 years and older) in the household are hopeful of the future (at least sometimes).	

APPENDIX 2.1: COMPILING A MULTIDIMENSIONAL POVERTY INDEX (MPI)

Notes: The indicators and descriptions for the child mortality, nutrition-malnourished, schooling, enrolment, water, sanitation, cooking, electricity and assets were taken from Finn, Leibbrandt and Woolard (2013) in order to ensure comparability.

Index III includes all of the indicators and cut-offs applied for Index II, except for child mortality which is excluded as an indicator in Index III. In its place, a measure of obesity within the household is included to complement the measure of malnutrition. A measure of school quality in the education dimension is also added, since school quality is a very important indicator of deprivation in the South African context, and has an effect on the ability of households to access the formal labour market (Van der Berg et al., 2011). A low-quality school is identified as one classified as a quintile 1, 2 or 3 school. Generally, this division is accurate in capturing quality differences between schools as children in this group of schools perform significantly worse than their peers in quintile 4 and 5 schools (Van der Berg et al., 2011). In addition, two new dimensions are included in Index III. The first captures the household's access to the labour market, which has been shown to be the main driver of inequality in South Africa (Leibbrandt, Finn and Woolard, 2011). Households with no employed adults are therefore sure to be more deprived than households with access to the labour market. The second dimension added to Index III measures life satisfaction and includes an indicator of subjective wellbeing and hopefulness within the household. This dimension is included to incorporate the fact that wellbeing also extends to indicators of emotional wellbeing within the household.

Fifth, a second cut-off of 1/3 for the poverty line is chosen. In other words, children are identified as poor if they reside in a household where they are deprived in a third or more of the weighted indicators. This cut-off was selected as it is in line with Alkire and Santos (2010) and Finn, Leibbrandt and Woolard (2013). However, children who are deprived in 50% or more of the weighted indicators are also identified, i.e. those who live in severely deprived households.

Sixth, the headcount (H), Average Intensity (A) and the MPI (H*A) are calculated. The headcount refers to the number of children who are deprived in 1/3 or more of the weighted indicators. The average intensity is the mean deprivation level for children who have been identified as being MPI poor. The MPI is the product between these two measures.

Seventh, the contribution by dimension is calculated using the following formula: Where the contribution of each indicator is a function of the weight of the indicator (); the censored headcount of indicator (which is the number of children who are both MPI poor and deprived in terms of indicator divided by the total sample); and the MPI. This makes it possible identify the indicators which require policy intervention most urgently.

Appendix 3.1

Table A3.1: Children in structural chronic poverty versus stochastic chronic poverty, 2008-2012

	Children in structural chronic poverty (trapped in poverty)	Children in stochastic chronic poverty	
	Means with standard errors in parentheses		T-stat
Initial conditions 2008			
HH per capita monthly income	285.66 (2.30)	391.27 (10.00)	9.78
HH per capita monthly expenditure	268.44 (3.52)	491.57 (24.84)	13.09
Asset index of hh	-0.85 (0.01)	0.02 (0.04)	14.9
Crowding in hh (>2 persons per room)	0.46 (0.01)	0.33 (0.04)	-3.08
Mean subjective wellbeing in hh (scale from 1 to 10)	4.71 (0.04)	5.07 (0.18)	2.01
HH size	7.37 (0.06)	5.51 (0.25)	-6.67
HH has insurance = 1 if yes	0.39 (0.01)	0.46 (0.04)	1.68
Proportion of hh children	0.48 (0.00)	0.43 (0.01)	-4
Proportion of hh pensioners	0.05 (0.00)	0.03 (0.01)	-1.96
Mean age of hh	20.20 (0.10)	21.22 (0.53)	2.11
Number of employed in hh	0.78 (0.02)	1.54 (0.11)	8.97
Mean years of education in hh	6.28 (0.05)	9.17 (0.17)	12.2
Female-headed hh	0.56 (0.01)	0.62 (0.04)	1.25
Rural hh	0.79 (0.01)	0.48 (0.04)	-9.08
Poverty head-count in district	0.51 (0.00)	0.43 (0.01)	-7.56
HH owns dwelling	0.36 (0.01)	0.54 (0.04)	4.45
HH owns TV	0.48 (0.01)	0.84 (0.03)	8.56
HH owns radio	0.62 (0.01)	0.72 (0.04)	2.31
HH experienced at least one shock in last 24 months (self-reported)	0.24 (0.01)	0.30 (0.04)	1.26
HH received grants = 1 if yes	0.88 (0.01)	0.77 (0.04)	-3.88
Mother's education	7.27 (0.07)	9.61 (0.22)	2.97
Child stunted = 1 if yes	0.16 (0.01)	0.13 (0.03)	-0.99
Child hunger = 1 if often or always	0.34 (0.01)	0.21 (0.03)	-3.22
Child ill (3 days in last month, self-reported)	0.08 (0.00)	0.11 (0.03)	1.18

	Children in structural chronic poverty (trapped in poverty)	Children in stochastic chronic poverty	
	Means with standard errors in parentheses		T-stat
Initial conditions 2008			
Child repeated a grade = 1 if yes	0.27 (0.01)	0.18 (0.04)	-1.76
Child double orphaned	0.03 (0.00)	0.04 (0.02)	0.96
Black African child	0.94 (0.00)	0.87 (0.03)	-3.36
Changes from 2008-2012			
Change in number of pensioners in hh	0.01 (0.01)	-0.06 (0.04)	-1.42
Change in hh size 2008-2012	0.58 (0.18)	0.27 (0.06)	1.17
Child moved households between 2008 and 2012 = 1 if yes	0.13 (0.01)	0.17 (0.03)	1.27
Change in number of employed in hh	-0.22 (0.02)	-0.45 (0.09)	-2.47
HH experienced at least one shock in period 2008-2012 (self-reported)	0.37 (0.01)	0.41 (0.09)	0.55
Observations	3 155	150	

Table A3.2: Income Convergence and measurement error in NIDS

	(1)	(2)	(3)
	OLS	IV 1 st stage	IV 2 nd stage
	Change in log (Income per Capita) between 2008 and 2012	Change in log (Income per Capita) between 2008-10 and 2010-12	Change in log (Income per Capita) between 2008 and 2012
Ln (Income per Capita in 2008)	-0.668***		-0.362***
Female household head	-0.035	-0.129***	0.004
Years of education HH head	-0.047***	-0.029**	-0.033***
Years of education squared HH head	0.007***	0.005***	0.005***
Age household head	0.008***	0.009***	0.005***
Urban	0.022	-0.027	0.032
Coloured	0.059	0.170***	-0.042
Indian	0.380***	0.496**	0.142
White	0.440***	0.516***	0.151

	(1)	(2)	(3)
	OLS	IV 1 st stage	IV 2 nd stage
	Change in log (Income per Capita) between 2008 and 2012	Change in log (Income per Capita) between 2008-10 and 2010-12	Change in log (Income per Capita) between 2008 and 2012
Household head employed	0.277***	0.365***	0.163***
Number of household residents	-0.034***	-0.093***	-0.011
Share of elders	0.159**	0.217**	0.115
Share of children	-0.814***	-0.273***	-0.733***
Household moved	0.096**	-0.065	0.111**
Living index in 2008	0.066***	-0.192***	-0.028
HH received grants in 2008	-0.323***	-0.246***	-0.220***
HH got new grants	-0.207***	-0.159***	-0.148***
Change in number of workers in HH	0.174***	-0.247***	0.254***
Change in household size	-0.048***	0.127***	-0.084***
Asset index in 2008		0.659***	
Constant	4.477***	6.633***	2.546***
Observations	5799	5799	5799
R-squared	0.539	0.628	0.482

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A3.3: School outcome logit regressions (based on NIDS 2008)

	(1)	(2)	(3)
	Age 10-14	Age 21-25	Age 21-25
VARIABLES	Reaching Grade7 on time	Reaching Matric	Some tertiary education
Mother lives in the Household	0.00857	0.0815**	
	(0.0235)	(0.036)	
Mother's years of education (imputed)	0.0177***	0.0255***	0.00782***
	(0.00337)	(0.00505)	(0.00202)

APPENDIX 3.1

	(1)	(2)	(3)
VARIABLES	Age 10-14	Age 21-25	Age 21-25
	Reaching Grade7 on time	Reaching Matric	Some tertiary education
Father lives in the Household	0.0558** (0.0237)	-0.035 -0.0395	
Father's years of education (imputed)	0.00867*** (0.00334)	0.0139*** (0.00535)	0.00373* (0.00198)
Log of per capita HH income	-0.00232 (0.0156)	0.101*** (0.0192)	0.0439*** (0.00698)
Number of children in HH	-0.0123** (0.00597)	-0.00151 (0.00976)	
Coloured	0.131*** (0.0359)	0.0176 (0.0654)	-0.0189 (0.0165)
Indian	0.227*** (0.0309)	-0.0864 (0.14)	0.00134 (0.032)
White	0.0946 (0.0843)	-0.205*** (0.0695)	-0.0447*** (0.0102)
Female	0.169*** (0.0217)	0.0464 (0.0325)	0.0258** (0.0126)
Urban	-0.0191 (0.0289)	0.0722* (0.0378)	-0.0215 (0.0144)
Observations	3142	2440	2430

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.10; Not listed province dummies

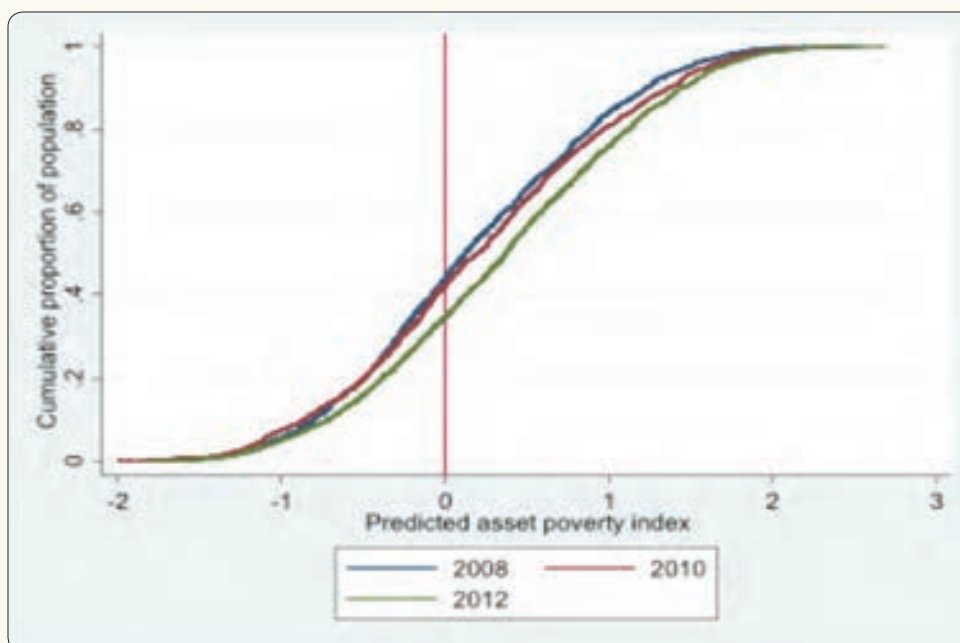
Appendix 3.2

The results of the NSES test should be interpreted while keeping in mind the following caveats. Firstly, by definition the panel sample does not include repeaters since Grade 4 and Grade 5 repeaters would not have been in the original Grade 3 sample, and Grade 3 repeaters were not included in the Grade 4 tests. For this reason one finds that the average scores were somewhat higher for the panel sample than for the full sample. Taylor & Taylor (2013) shows that this selection effect, however, is not strong enough to warrant much concern regarding biased estimates. The difference in average performance ranges from 3.5 percentage points in 2007 to 2.7 percentage points in 2009. Secondly, the panel sample also tends to be marginally wealthier, with their average socio-economic status being slightly higher than the average socio-economic status in the full sample. Lastly, the prevalence of students who are older than what is expected is also considerably higher in the full sample, mostly due to repeaters not being captured in the panel sample. Unless otherwise stated, the full sample of students in each year of the NSES study will be used. This is because the primary motivation in this section is to determine the performance of the average student in Grades 3 and 5 on Grade 3 content rather than following the same students. This makes it possible to use the larger sample of 15 000 students in each grade rather than the smaller panel sample of 8383 students.

Appendix 3.3

Some sense of the magnitude of asset poverty is provided in Figure A3.1 which plots the cumulative density of children in households which have been classified as poor using asset poverty as a concept. It is clear to see the decrease in poverty over time, in line with the poverty trend when using income.

Figure A3.1: Predicted poverty using asset index



APPENDIX 3.3

The variables include the log of the subsistence amount (calculated as R575 times the number of household members – an indication of what level the household’s income should be at in order for it to reach subsistence levels)¹¹⁴; the number of household members who are employed, the proportion of the household that is of an pension-eligible age (60 for females and 65 for males) in the household; a living index (which is an index measuring the household’s access to basic amenities such as flush toilets, running water and electricity); the mean years of education in the household (calculated only for household members older than 16 years); the proportion of children in the household (as a proxy measure for whether the household receives a child support grant); whether anyone in the household owns the dwelling that the household lives in¹¹⁵ and an indication of whether the household has access to a television or radio (these are proxies for whether the household has access to information which will assist household members with finding employment).

In addition to these variables, the regression also includes a number of controls to capture the spatial variation in poverty in South Africa. Provincial fixed effects are included (not reported above), as well as a dummy variable for whether the household resides in a rural area, and interactions between these two variables. In addition, a variable is included capturing the poverty headcount index of the district council in which the household lives. This is to capture all unobserved geographic characteristics which may have a significant impact on the household members’ ability to find employment and earn a living which is larger than the poverty line.

Table A3.4: Descriptive statistics per poverty category

	Chronically poor (poor in 2008 and 2012)	Non-poor (non-poor in 2008 and 2012)	Fell behind (poor 2008 and non-poor 2012)	Got ahead (non-poor in 2008 and poor in 2012)
	Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)
Initial conditions 2008				
HH per capita monthly income	290.44 (128.89)	1814.73 (2146.05)	1062.86 (937.19)	339.74 (135.33)
HH per capita monthly expenditure	278.53 (205.89)	1535.87 (2100.59)	752.81 (1179.84)	396.10 (345.79)
Asset index of hh	-0.81 (0.71)	0.50 (0.87)	-0.21 (0.83)	-0.33 (0.76)
Crowding in hh (>2 persons per room)	0.46 (0.50)	0.17 (0.37)	0.25 (0.43)	0.35 (0.48)
Mean subjective wellbeing in hh (scale from 1 to 10)	4.73 (2.08)	6.17 (1.93)	5.35 (1.91)	5.24 (2.12)
HH size	7.29 (3.31)	5.30 (2.28)	6.03 (2.64)	6.67 (3.32)
HH has insurance = 1 if yes	0.40 (0.49)	0.72 (0.45)	0.55 (0.50)	0.47 (0.50)
Proportion of hh children	0.48 (0.15)	0.38 (0.14)	0.41 (0.15)	0.43 (0.15)
Proportion of hh pensioners	0.05 (0.08)	0.05 (0.11)	0.08 (0.12)	0.05 (0.10)
Mean age of hh	20.25 (5.71)	24.90 (6.80)	24.20 (6.87)	22.12 (6.40)

¹¹⁴ A control suggested by May and Woolard (2007).

¹¹⁵ Since there were many households who responded in the affirmative to this question, it is only code as being equal to one if the dwelling is a formal house with brick walls.

APPENDIX 3.3

	Chronically poor (poor in 2008 and 2012)	Non-poor (non-poor in 2008 and 2012)	Fell behind (poor 2008 and non-poor 2012)	Got ahead (non-poor in 2008 and poor in 2012)
	Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)	Mean (standard deviation)
Initial conditions 2008				
Number of employed in hh	0.81 (1.02)	1.55 (1.05)	1.31 (1.14)	0.78 (0.88)
Mean years of education in hh	6.41 (2.85)	9.46 (3.03)	7.69 (2.74)	7.35 (2.73)
Female-headed hh	0.57 (0.50)	0.36 (0.48)	0.53 (0.50)	0.52 (0.50)
Rural hh	0.78 (0.42)	0.32 (0.47)	0.57 (0.50)	0.61 (0.49)
Poverty head-count in district	0.51 (0.13)	0.37 (0.15)	0.44 (0.15)	0.46 (0.14)
HH owns dwelling	0.36 (0.48)	0.67 (0.47)	0.56 (0.50)	0.51 (0.50)
HH owns TV	0.50 (0.50)	0.86 (0.35)	0.72 (0.45)	0.70 (0.46)
HH owns radio	0.63 (0.48)	0.71 (0.46)	0.70 (0.46)	0.67 (0.47)
HH experienced at least one shock in last 24 months (self-reported)	0.24 (0.60)	0.27 (0.64)	0.27 (0.56)	0.27 (0.60)
HH received grants = 1 if yes	0.87 (0.34)	0.52 (0.50)	0.84 (0.37)	0.81 (0.39)
Mother's education	7.37 (3.75)	10.27 (3.04)	9.13 (3.17)	8.60 (3.41)
Child stunted = 1 if yes	0.16 (0.37)	0.10 (0.30)	0.12 (0.33)	0.14 (0.34)
Child hunger = 1 if often or always	0.34 (0.47)	0.09 (0.28)	0.19 (0.39)	0.24 (0.43)
Child ill (3 days in last month, self- reported)	0.08 (0.28)	0.10 (0.30)	0.08 (0.26)	0.08 (0.27)
Child repeated a grade = 1 if yes	0.27 (0.44)	0.19 (0.39)	0.20 (0.40)	0.22 (0.41)
Child double orphaned	0.03 (0.17)	0.03 (0.16)	0.04 (0.19)	0.03 (0.18)
Black African child	0.94 (0.25)	0.67 (0.47)	0.85 (0.36)	
Changes from 2008-2012				
Change in number of pensioners in hh	0.01 (0.55)	0.01 (0.47)	-0.04 (0.57)	-0.02 (0.53)
Change in hh size 2008-2012	0.29 (3.08)	-0.01 (1.86)	0.02 (2.43)	-0.51 (2.90)
Child moved households between 2008 and 2012 = 1 if yes	0.13 (0.34)	0.17 (0.37)	0.19 (0.40)	0.22 (0.42)
Change in number of employed in hh	-0.23 (1.08)	-0.16 (1.11)	-0.38 (1.30)	0.64 (1.15)
HH experienced at least one shock in period 2008-2012 (self-reported)	0.37 (0.74)	0.38 (0.69)	0.28 (0.62)	0.36 (0.72)
Observations	3 305	1 451	790	1 412

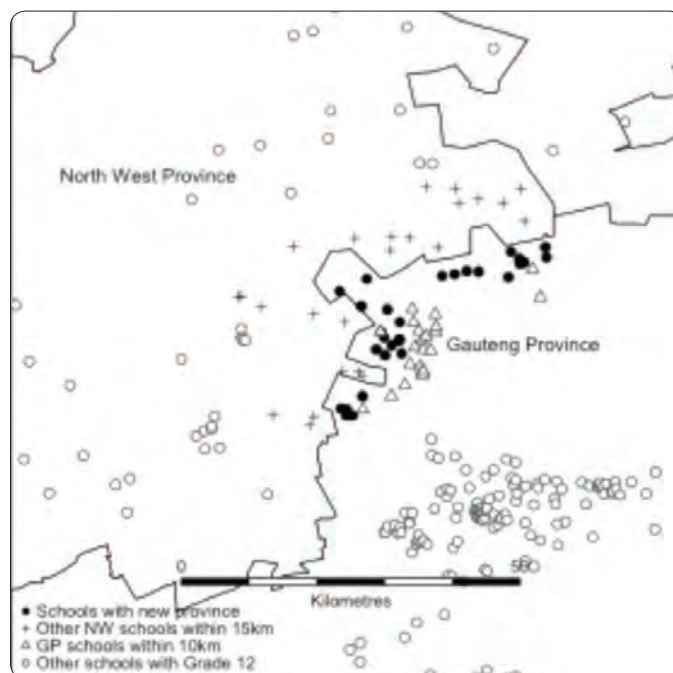
APPENDIX 5.1

A natural experiment: the effect of border changes on educational outcomes

A natural experiment that occurred when schools were transferred from one province to another after provincial borders were changed allows an investigation of the effect of administrative change on educational outcomes. This emphasises how important institutions are for bringing better education to South Africa's children. Specifically, the discussion shows that what a provincial department of education does, partly through its district offices, has considerable influence on the quality of education. (Within education policy circles there is already considerable emphasis on strengthening district offices that support schools.) The discussion draws from an empirical paper by Gustafsson and Taylor (2013) which makes use of the fact that provincial boundaries were redrawn in 2005 to test the impact of provincial administrations.

In 2005 provincial boundaries changed slightly. Just over 700 schools, out of around 25 000, found themselves moving to another province. Of the transferred schools, 158 offered Grade 12, and it was these schools that Gustafsson and Taylor (2013) focussed on, largely because it is only at this level of the schooling system that there are standardised data on learning outcomes for the years in question. The analysis focused on the 29 schools that moved from North West to Gauteng, as it was only for these schools that there was enough data on nearby non-transferred schools to allow for the checks required for the approach that was used. The map below shows current provincial boundaries, as well as the location of the 29 transferred schools (largely from the areas Hammanskraal and Winterveld), the location of schools which had always been in Gauteng and were close to the transferred schools (these would largely be Soshanguve schools) and a third group of schools, those close to the transferred schools but that had remained in North West. Though the law that brought about the boundary changes was passed in December 2005, the Gauteng provincial department only formally took charge of the 29 schools in April 2008.

Figure A5.1: Schools that moved from North West to Gauteng



Source: Gustafsson and Taylor (2013).

The analytical approach used by Gustafsson and Taylor (2013) is interesting and reflects a general trend towards more careful analysis of causal relationships in the education sector. In South Africa, the government is actively encouraging this trend, for instance through establishing capacity in the Presidency to undertake impact evaluations¹¹⁶. This work is important, given that education interventions often do not yield the specific impacts that are expected, and, that discerning the actual impact of an intervention may not be possible without a rigorous assessment. This is discussed further below.

The approach of Gustafsson and Taylor (2013) involves thinking of the transfer of schools from North West to Gauteng as a 'natural experiment'. The schools that were transferred were not special in any educational sense, so they can be considered a randomly selected group. The 'treatment' was the transfer to a new province. The analysis found that the transferred schools did experience exceptional improvements, suggesting that the change in administration benefitted the schools. The authors test for the possibility that there might be alternative explanations for the improvements¹¹⁷, but the evidence suggests that the change of provincial administration is the most important contributor to the academic gains observed. It is worth bearing in mind that the 29 schools were from an area that has clearly under-performed, displaying Grade 12 results below those of either North West or Gauteng as a whole. Improvements amongst these schools should therefore be of special interest from a poverty reduction perspective.

Improvements in the 29 schools were measured in terms of a variety of indicators relating to the schools' Grade 12 mathematics results. The most remarkable change was that the number of students achieving a high-level mathematics pass of 70% or higher increased. In particular, the average number of high-level passes per school amongst the 29 schools increased from 1.5 to 3.5 students between 2011 and 2012. In this regard, the 29 schools displayed trends similar to those of schools in the area which had always been in Gauteng. These latter schools saw their figure improve from 1.9 to 4.7 over the same period. Nearby schools that remained in North West did not experience this kind of improvement. Improvements at the top end of the performance spectrum within a socio-economically disadvantaged area are particularly positive, both because of the prospects for higher income associated with entry to universities and in terms of the skills shortfall in the economy. Gustafsson and Taylor (2013) were concerned that so much of the change should have occurred after 2011, or four years after the transfer occurred. They indicated that in the interests of greater certainty, the analysis should be redone after the 2013 Grade 12 examinations data become available.

Many South Africans would not be surprised that schools transferred to Gauteng should see their results improve, as it is popularly believed that Gauteng offers better services than neighbouring provinces. Such beliefs lay behind violent protests by the Khutsong community after the 2005 legislation transferred the town from Gauteng to North West. In response to the popular protests it was eventually decided that Khutsong would remain in Gauteng. Evidence that supports the notion that specific services are better in Gauteng is important, as such evidence is needed to extract lessons on best practices from this province.

What exactly might explain the improvements?

As Gauteng is a relatively rich province, some may conclude that the explanation would lie in higher spending. In fact, Gustafsson and Taylor (2013) conclude that the public funding data point to per learner spending being either slightly higher in North West than Gauteng, or virtually the same across the two provinces, during the years in question. Higher spending in Gauteng does therefore not appear to be the explanation. Yet according to interviewees that Gustafsson and Taylor (2013) speak to, better resourcing did play a role. Specifically, the 29 schools were seen

¹¹⁶ See <http://www.thepresidency-dpme.gov.za>. The general approach is described in Presidency's National evaluation policy framework.

¹¹⁷ For instance, was there a general economic improvement in the area around the year 2008, which could have made it easier for parents to invest in the education of their children? Or did the transferred schools display exceptional improvements because highly capable students decided to switch to the transferred schools?

to be under-resourced in terms of textbooks and videos on science experiments when they were transferred to Gauteng, relative to nearby schools that were originally in Gauteng. Gauteng provided the schools with the missing materials, according to the interviewees. There may thus have been a burst of higher spending in the 29 schools. But the question is how Gauteng has apparently been able to maintain better levels of resourcing, with respect to educational materials, within a per learner spending level that is similar to that of North West. One would only be able to answer this question with certainty through a detailed analysis of expenditure patterns in the two provinces, but tentatively one can conclude that Gauteng is better at ensuring that materials are bought at the lowest prices, that materials reach schools and that schools take care of the materials. Human resources also seem to be better utilised by the Gauteng administration.

What may be more important than levels of spending is having motivated and capable district support staff who listen to schools, but also coax them to perform better, and deal properly with logistical issues such as the supply of educational materials. This is not merely a theoretical point. Some provincial and district administrations are clearly seen as more professional by school principals. They appear to bring about better results amongst poor learners, and the country as a whole needs to learn from them. The case dealt with involved support to schools at the secondary level, but given that the same institutions support primary and secondary schools, it is safe to assume that the points made above also apply to government actions influencing primary schools education and younger children.

Very different practices and work cultures seem to exist in the district offices of the two provinces. In Gauteng, district officials are reportedly pro-active, visit schools frequently, encourage principals and teachers to achieve better results, but also listen to school staff and take care of funding and procurement matters in an efficient manner. North West district offices are reportedly less responsive. They seldom visit schools and, according to one anecdote, principals who go to the district office risk finding the office closed for lunch, something that does not occur in Gauteng. Apart from anecdote, there is in fact an alternative and more scientific source of information which supports interviewees' responses. In 2011, the national education authorities conducted a rather unusual survey of around 2000 schools (Department of Basic Education, 2013c). The survey was unusual in the sense that went beyond the concerns of most school surveys and included, for instance, classroom visits where the writing books of learners were examined to see how much schoolwork they had done and how teachers had marked this. The survey moreover gathered responses from school principals on their opinions of district support. This latter element acknowledges an important point that is often not sufficiently appreciated: If one wants to understand how to improve district support, which is in many ways more important than studying what happens in districts, it is necessary to study the district-school relationship from the perspective of the school.

What the 2011 data of the national department point to is that school principals in North West are amongst the country's most dissatisfied when it comes to the quality of district support. Gauteng's principals, on the other hand, are exceptionally satisfied with support received from districts. In fact, the aspect of district support that Gauteng's principals are particularly happy with is support around the provisioning of educational materials. This dovetails surprisingly well with the impressions of the interviewees discussed above.

So one can conclude from this study that better support is not simply a matter of larger budgets. What is strongly supported is the notion that administrators who show an interest in school improvement, listen to schools and manage the supply of educational materials well lead to better performing schools. It is very important for schools to have a critical mass of educational materials.

Supporting implementation through institutions and information

Due to the influence of New Institutional Economics, it is now widely accepted that it is not possible to fully understand constraints to development and poverty alleviation without considering the institutional factors that produce the persistence of suboptimal decision-making and outcomes. While it is useful to know what policy options can be pursued to combat persistent poverty, such policies may not amount to much without a grounded understanding in the habits and motivations of governments, organisations and households.

The term 'institutions' has been used in a myriad of ways in both policy and economic research circles. It can be employed to refer to organisations and groups (such as for instance the public service, courts, civil society and schools) or the incentive systems and constraints shaped by these entities. The first option is more in line with the popular meaning, but the latter has become dominant in the institutional economics literature. North (1990: 3), a pioneer in this field, defines institutions as 'the rules of the game', which largely focus on the humanly devised constraints that influence interaction and structure incentives. He views organisations and groups as the players of the game. Here the term will also be used to refer to constraints and incentives. However, it is acknowledged that high levels of interaction exist between the players and the rules and of course the players often have a strong influence on the rules.

Institutions help to map the possible choices available to individuals and organisations. In this way institutions provide a structure to the complex world and help to reduce uncertainty, which in turn improves the ability of organisations and individual to assess their options and likely consequences stemming from the available options. North refers to institutions as 'regularized interactions' (1990: 23) to emphasise how patterned, repeated actions and reactions can help to simplify complicated and ambiguous situations to enhance social stability.

North's model diverges from standard mainstream neo-classical economic models by recognising that institutions need not be growth enhancing. Institutions are designed by individuals and organisations to serve their own aims, which may or may not also serve those of the economy. There is also no reason why institutions that reduce productivity and are bad for growth cannot persist. By introducing transactions costs and acknowledging that decision making models may be wrong and that wrong decision making models may persist, North creates a framework where suboptimal institutions may endure.

The concept of transaction costs is central in this literature. Transaction costs refer to the time and money that need to be invested to make a transaction happen. It includes the protection and enforcement of the property right and the assessment of the valuable attributes of the product or service that is for sale. A higher transaction cost represents a greater obstacle to exchange and in extreme cases these transaction costs can be prohibitive, which results in incomplete or missing markets.

The distinction between informal and formal institutions is vital in the institutional literature. Rules, regulations and constitutions are examples of formal institutions, while norms, culture and codes of conduct are examples of informal institutions. Informal institutions are transferred from one generation to the rest and can be difficult to understand for an outsider because these 'rules' are often tacit.

In a recent article, Svensson and Bold (2013) probe the question of prudent institutions for service delivery. They accept that poor institutions may be a large contributor to disappointing service delivery in developing countries, but then proceed to ask how one reforms institutions around service delivery to create greater responsiveness towards the users. Specifically, they ask “if institutions are the outcome of decisions by policymakers and serve the purpose of benefitting some at the cost of the majority, what can be done to facilitate empowerment and thus the development of inclusive political institutions?”

The traditional diagram depicting the problem of service delivery was pioneered with Lant Pritchett’s chapter in the World Bank Development Report 2004 and shows a triangle comprising of the politician/government at the top, delegating delivery responsibilities and functions to the service provider (either internal or external), who then delivers a service to the beneficiary (in exchange for a contract payment or a salary). The problem is that with public services the beneficiary often has no power over the service provider because he or she does not pay for the service, e.g. RDP houses or primary health care services. This direct relationship between the beneficiary and service provider is often called the ‘short route’ of accountability, but in many cases it is essentially broken and it is cumbersome and involved to fix it. The alternative route for accountability is the so-called ‘long route’, running from the beneficiary to the politician/government and then to the provider. But given infrequent elections and lack of real ballot box choices characterising many modern democracies, it is not clear that individual voters have a strong hold over politicians and government to improve services via the political system. Additionally, it is complex to create incentives and contracts to ensure that providers (whether they are external or internal to government) deliver services in accordance with the priorities of the government or head bureaucrat. To create a bridge between the beneficiary and the provider via this ‘long route’ would require not only that the government knows the beneficiary’s needs, but also that the government cares about the beneficiary’s needs and that they are able to create an effective system of monitoring and incentives to steer the provider towards prioritising and fulfilling the beneficiary’s needs.

A Kenyan study assessing the impact of contract teachers illustrates the risks inherent in not critically considering implementation capacity when designing policies and interventions. Duflo, Dupas & Kremer (2012) segmented a contract teacher study to allow for a comparison of the implementation capacity of an international NGO and government. They found that there was only evidence of a significant impact when the contract teachers were hired and managed by the international NGO, not when government was in charge. Specifically, under the government appointments were not always based on merit and the threat of dismissal was not perceived as credible.

When thinking about making accountability work via the ‘long route’ it is important to bear in mind that many governments struggle with routine tasks and basic bureaucratic functions. To encourage providers to be responsive and accountable to beneficiaries via the long route (political system) requires not only a bureaucracy whose interests have been aligned with those of the beneficiaries (through the voting system and pro-social norms and institutions), but also a competent and dynamic civil service with sufficient contracting or human resource expertise to design and manage sets of lucrative incentives to ensure alignment between the priorities and goals of the bureaucracy and that of the provider. These requirements are rarely met in developed countries and frequently unrealistic in developing countries.

Most accountability research has therefore focussed on the ‘short route’, i.e. finding ways to make the provider more responsive and accountable to the user or beneficiary. While many of the initial studies failed to show an impact and spoke about the difficulties of making bottom-up accountability work, more recent work tends to be more optimistic. For instance, Bjorkman-Nyqvist, et al (2013) show that the provision of feedback channels on its own has no impact unless the beneficiaries also receive information on how to assess performance.

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