



UNIVERSITY OF THE WESTERN CAPE
DEPARTMENT OF ECONOMICS

The impact of educational attainment on youth poverty
in South Africa

by

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A thesis submitted in fulfilment of the requirement for the degree of Master of Commerce in
the Department of Economics, University of the Western Cape.

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DECLARATION

I declare that “*The impact of educational attainment on youth poverty in South Africa*” is my own work, that it has not been submitted for any degree or examination in any university, and that all the sources that I have used or quoted have been indicated and acknowledged by complete references.

Yolelwa Jili

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ABSTRACT

Improving South Africa's educational attainment levels has always been one of the policies of the democratic government en route to alleviating poverty and unemployment. The endeavours are mostly evident in the fiscal budget where a large portion of the government expenditure is devoted to education. Despite such efforts, poverty reduction and unemployment curtailment probability effects of education have been gradual. To date, the youth is faced with obstacles of extreme poverty and alarming levels of unemployment.

This study examined the impact of educational attainment levels on youth poverty in South Africa. Taking account of the intricate nature of poverty, the study applied both money-metric and non-income welfare indicators to determine poverty. Moreover, this research will enable an investigation on whether the extent of youth poverty reduction possibility, due to higher educational attainment, is the same with the non-youth cohort aged 35-59 years.

Using the Living Conditions Survey (LCS) data set of 2008/09 and 2014/15, the study employed the Foster-Greer-Thorbecke poverty measure with the lower-bound poverty line approximated at R689 per capita per month (in 2016 December prices) to identify the money-metric poor. For non-money metric poverty, the study adopted the relative approach and FA-derived welfare index valued at 40th percentile. Additionally, descriptive and econometric (probit and bivariate probit models) analyses were conducted to explore the impact of educational attainment levels on poverty.

The empirical findings showed that the poverty likelihood was higher at lower education levels and amongst the youth aged 15-34 years, in contrast to the non-youth cohort aged 35-64 years. Apart from Africans, females and rural residents were identified as the most vulnerable to poverty. Limpopo and Free State were also more likely to be money-metric poor while Eastern Cape and KwaZulu-Natal were associated with greater non-money-metric poverty likelihood. Lastly, the poverty decomposition results indicated that wage income had the highest poverty-reducing effect while the impact of social grant declined across higher educational attainment categories.

Keywords: Youth, Education, Poverty, South Africa

JEL Codes: I25, P36, P46

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LIST OF ABBREVIATIONS

ANA	Annual National Assessments
ASEC	Annual Social and Economic Supplement
CBN	Cost-of-basic needs
CPI	Consumer Price Index
CPS	Current Population Survey
DASP	Distributional Analysis Stata Package
FA	Factor Analysis
FEI	Food-energy intake
FGT	Foster-Greer-Thorbecke
FPL	Food poverty line
GE	General Entropy
GHS	General Household Surveys
HIES	Household Integrated Economic Survey
IES	Income and Expenditure Survey
ILO	International Labour Organisation
LBPL	Lower-bound poverty line
LCS	Living Conditions Survey
LFS	Labour Force Survey
MCA	Multiple Correspondence Analysis
MPI	Multidimensional Poverty Index
NDA	National Development Agency
NEET	Not in Education, Employment or Training
NIDS	National Income Dynamics Study
OECD	Organisation for Economic Co-operation and Development
OHS	October Household Survey
PCA	Principal Components Analysis
PIRLS	Progress in International Reading and Literacy Study
PSLSD	Project for Statistics on Living Standards and Development
QLFS	Quarterly Labour Force Surveys
SACMEQ	Southern and Eastern Africa Consortium for Monetary Educational Quality
StatsSA	Statistics South Africa
TIMSS	Trends in Mathematics and Science Study

UBPL Upper-bound poverty line
UNDP United Nations Development Programme

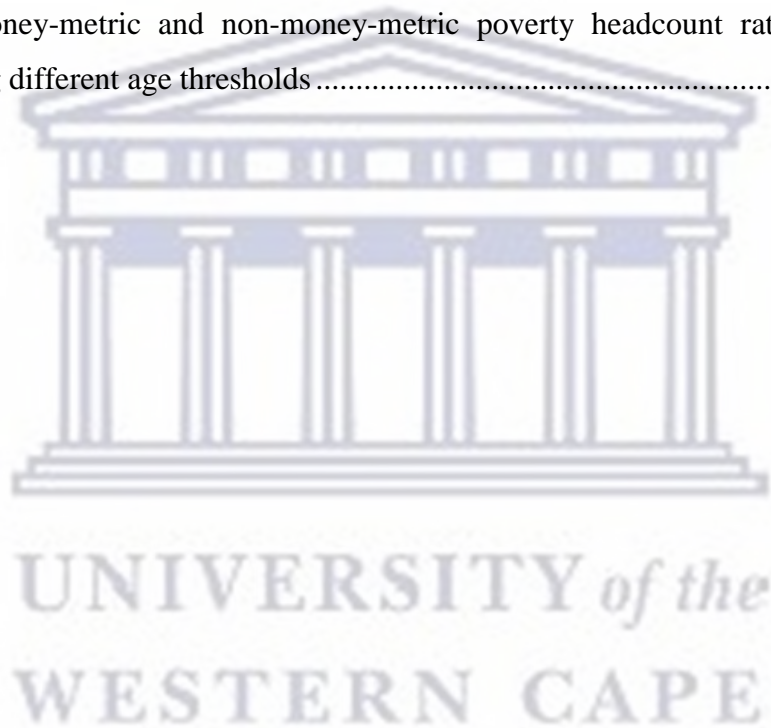


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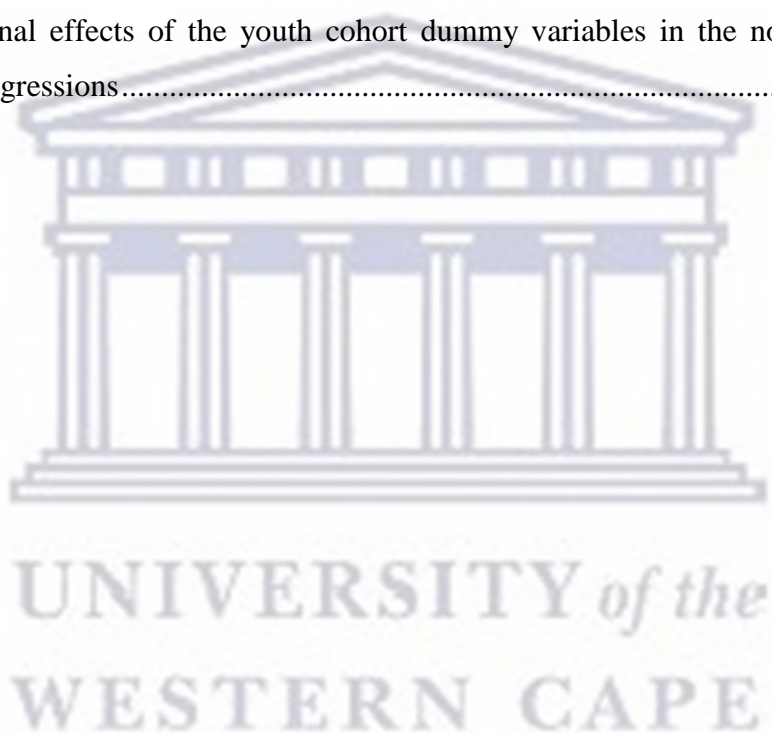
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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Low educational attainment is one of the socio-economic plights the post-apartheid government has been endeavouring to tackle since the advent of democracy. In the 2020/21 fiscal budget, a very high proportion (23.4%) of the government expenditure was allocated to education, with an annual average growth rate of 7.6% for the past three years (National Treasury, 2020). The upward spiral in education expenditure accentuates the increasing need for education to combat poverty. In the absence of human capital investment, Mughal (2007) asserts it is irrevocable that poverty elimination and economic development mostly rely on the attainment of education and skills. Education enhances the prospects of acquiring better jobs (Branson & Leibbrandt, 2013), earning higher wages (Van der Berg, 2002) and improves the likelihood of upward occupational mobility (Louw *et al.*, 2006).

Although involvement in paid employment has the greatest absolute effect on poverty reduction (Armstrong & Burger, 2009), access to lucrative employment is mainly influenced by an individual's level of schooling (Todaro & Smith, 2011:377). Those in better employment are mainly in possession of higher levels of schooling since the labour market demands adept and highly educated people (Van der Berg, 2002; Banerjee *et al.*, 2008; Biyase & Zwane, 2018). Conversely, low educational attainment levels induce an influx of workers to informal employment characterised by low and uncertain levels of income (Heintz & Posel, 2008; Blaauw, 2017), discouraged work seekers (Verick, 2012) along with high unemployment probabilities. In consequence, a vicious cycle of poverty is created. Many researchers also believe literacy could have a significant part in the eradication of poverty (Shannon, 1996). On the other hand, mere literacy together with no education serves to amplify poverty (Tilak, 2007). Thus, there is an inverse relationship between educational attainment and poverty (Botha, 2010).

While notable improvements in average educational attainment can be discerned among the youth cohorts (Bhorat & Oosthuizen, 2007), there is an upheaval in key socio-economic challenges of poverty and unemployment. The young population encounters the highest incidence and shares of income poverty (Leibbrandt *et al.*, 2010; Frame *et al.*, 2016) and unemployment (Bhorat, 2009; Festus *et al.*, 2015). It implies that the impact of education on

poverty reduction and greater employment probability has not been instantaneous compared to the non-youth cohort (Branson & Wittenberg, 2007).

The challenge of alarming levels of youth unemployment is a global phenomenon (Lam *et al.*, 2008). According to Statistics South Africa (StatsSA) (2020), the age group of 15-34 years accounts for almost two-thirds of the unemployed; that is approximately six in every 10 young people who do not have a job. Moreover, youth are associated with lower probabilities of finding jobs (Anand *et al.*, 2016), encounter higher barriers to entry into the labour market due to their lack of experience (Görlich, 2013), are relatively more likely to be laid off first during economic downturns (Mlatsheni, 2007; Yu, 2012) and are more susceptible to poverty and unemployment (International Labour Organisation, 2010).

While many studies on education and poverty exist in the South African literature, most of them focus on the overall population, generally for the age group 15-64 years (Botha, 2010). There are hardly any local studies that empirically analyse the relationship between educational attainment and poverty of the youth cohort aged 15-34 years, who account for the highest share of the entire population.

1.2 Research questions

In determining the impact of educational attainment levels on youth poverty, the study aims to answer the following research questions:

- i. What has been happening to the educational attainment of the youth cohort over the years?
- ii. What is the relationship between educational attainment and poverty incidence?

1.3 Objectives of the study

The general research objective of this study is to examine the significant extent of educational attainment on the poverty of youth aged between 15-34 years in South Africa. Nonetheless, the specific research objectives of the study are to:

- i. Compare the educational attainment of youth and non-youth cohorts.
- ii. Examine the profile of youth money-metric and non-money-metric poverty by educational attainment.
- iii. Investigate whether the extent of poverty reduction possibility due to higher educational attainment is the same with the non-youth cohort.

1.4 Significance of the study

A substantial body of research has examined the link between education and poverty, with the results demonstrating an inverse relationship. That is, the likelihood of being poor is lower at higher levels of educational attainment (Branson & Leibbrandt, 2013; Rena & Wanka, 2019). However, despite such profuse literature examining the effect of education on poverty, there are fewer studies that have specifically concentrated on the youth population; one of the most vulnerable groups to poverty, constituting a high percentage of the unemployed (Festus *et al.*, 2015) and a larger share of the South African population. For this reason, the study aims to fill this knowledge gap in previous literature.

1.5 Outline of the study

The organisation of the remainder of this study is as follows: Chapter Two provides a review of the literature. In this chapter, the conceptual framework related to the study, measurement of poverty, theoretical framework and the empirical literature formerly conducted on the topic will be explored. Chapter Three analyses the data and methodologies used to examine the effect of educational attainment on youth poverty in South Africa. Chapter Four presents the results of the empirical analysis, using the Living Conditions Surveys (LCS) for the periods 2008/09 and 2014/15, generated by the methodology established in Chapter Three. Finally, Chapter Five concludes the study.



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CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Chapter Two presents the conceptual framework related to the study, measurement of poverty, theoretical framework and past empirical studies conducted on the topic. This chapter is structured in this manner: Section 2.2 defines fundamental concepts related to the study; Section 2.3 focuses on the measurement of poverty; Section 2.4 gives an overview of theories associated with education and poverty; Section 2.5 provides a review of literature on the relationship between educational attainment and poverty while Section 2.6 concludes the chapter.

2.2 Conceptual framework

This section elucidates the various concepts cognate with the study, namely educational attainment, literacy, youth and poverty, along with varying forms of interpreting poverty,

2.2.1 Educational attainment

Education is one of the fundamental constituents of human development considered an engine for economic growth (Lucas, 1988). That is, improvements in education positively contribute to the economic development and growth of a country. Accordingly, public authorities have greatly advocated education expansion, devoting a non-negligible portion of financial resources to education (Lauer, 2002:1).

The study concentrates on educational attainment where the qualitative disparities embodied in educational qualifications are blurred. Although these terms are compatible, they give prominence to different criteria. Spaul (2015) interprets quality education as the acquisition of knowledge, skills and values that society deems valuable. Quantity education, represented by the level of educational attainment, refers to the highest degree of formal education obtained and assumes that an increment in schooling level completed adds a constant quantity to human capital stock (De Vos, 2011). The completion of schooling levels is often recompensed by certificates that prove as credentials that warrant a labour market entry (Schneider, 2007). The study notes educational attainment as the level of schooling achieved and demonstrated by the following education splines namely, no schooling, primary, secondary, Matric, Matric plus certificate (or diploma) and degree.

2.2.2 Literacy

In general, literacy is defined as the acquisition of reading and writing skills and involves more than just using words and understanding symbols (Bowman, 2002). According to Ravid & Tolchinsky (2002), literacy includes both word-level understandings about how print represents speech and broader understandings regarding written and spoken language as systems for communicating meaning. Learners' literacy levels are extensively considered a crucial measure of educational quality because they are critical to intellectual and affective development (Hendricks, 2009). In South Africa, Grade seven has been adopted as a proxy indicator for functional literacy (Aitchison, 2016).

2.2.3 Youth

Youth generally refers to the young population, albeit the age range that differs from country to country. The United Nations General Assembly (2005) defines the youth as population aged 15-24 years. This age bracket has also been adopted by international institutions such as the International Labour Organisation (ILO). In South Africa, the youth is represented by individuals between the ages of 15-34 years,¹ according to StatsSA (2011). Notwithstanding the broad gap compared to the international benchmark, Lam *et al.* (2007) maintain that the 15-34 years age range is appropriate as many young people remain in education for a relatively long period.

2.2.4 Poverty

Mbuli (2008) asserts that the standard approved definition of poverty is non-existent, allowing for the evolution of other perspectives. The existence of several expositions is evidence of varying experiences and apprehension of poverty by different people. World Bank (2001) relates poverty with hunger, lack of shelter and clothing, as well as illness and illiteracy. A common consensus reached by the United Nations Development Programme (UNDP) (1997: 16) elucidates poverty with reference to three perspectives, namely income, capability and basic needs.

Income and consumption are conventional methods of determining poverty (World Bank, 2000:16). As the most commonly applied poverty measure (Leibbrandt & Woolard, 1999), income reckons poverty with reference to a survival criterion. According to this approach, a

¹ Only the age group 15-29 years is defined as youth and eligible for the youth wage subsidy, otherwise called Employment Tax Incentives Bill (Yu, 2013).

household is poor if, and only if, their income level is lower than the defined poverty line (UNDP, 1997). That is, a household is categorised as poor if they have insufficient income to obtain commodities that fulfil their basic needs. According to Rogan & Reynolds (2015), a poor household has a minimum acceptable income below the poverty threshold. The debate on whether to adopt income or consumption as a measure of deprivation primarily advocates for consumption in developing countries as it properly encapsulates a household's well-being. In contrast, income may vary significantly over time and predominantly emanates from irregular sources (Haughton & Khandker, 2009).

According to the UNDP (1997), poverty further denotes the absence of some basic capabilities to function. Sen (1985) iterated poverty through the capability approach accentuating on individuals' abilities to function in a society instead of maximising utility through monetary income. The approach recognises poverty as multidimensional, depositing great emphasis on the constraints that may limit individual lives in choosing to be and doing what they have a reason to value (Clark, 2009). These states of beings and doings, which Sen called functionings, include being adequately nourished and happy, while capabilities refer to a person's potential to achieve alternative combinations of functionings from various good opportunities (White *et al.*, 2016). Capabilities incorporate the freedom to achieve valuable functionings and demonstrate to what extent a person has real opportunities or abilities to select valuable alternatives of lives (Kimhur, 2020). In this case, individuals are deemed poor if they lack the most basic capabilities to lead reasonable lives, such as access to resources and social services. Robeyns (2005) notes that the capability approach provides a broad normative framework to conceptualise and evaluate poverty rather than to explain it. Within the context of this approach, one can be lacking in terms of their capabilities while not being monetary poor (Alkire, 2002).

Furthermore, poverty is the deprivation of material requirements for minimally acceptable fulfilment of human needs, including food (UNDP, 1997). The method entails the level of access to satisfy particular basic needs (Budlender, 1999). The concept of basic needs was made familiar through Maslow's hierarchy of needs, stressing the prominence of fulfilling certain needs. According to Steward (1985), the term basic needs is interpreted as the satisfaction of minimum human needs concerning education, health, essential services, nutrition, material needs such as shelter and clothing, as well as non-material needs including employment, freedom of choice and participation. The approach focuses on the nature of

what is provided, rather than income itself. A poverty situation emerges when basic human needs are not met (Makiwane & Kwizera, 2009).

The analysis of poverty demonstrates it as a multidimensional term that is not only circumscribed by monetary measures. The literature on poverty conforms to the failure of money-metric measures in capturing varied elements of poverty as paradigms of well-being (Hulme & Shepherd, 2003; Frame, 2016). Poverty can be measured from a non-money-metric outlook by assessing indicators that include the ownership of and access to public and private assets along with vulnerability and isolation. Thus, the multidimensional approach evolved due to the necessity to measure poverty more directly through its many dimensions (Van der Walt, 2004:11), which will be reviewed in the following sub-section.

2.3 Measurement of poverty

While it is less cumbersome to measure educational attainment vis-à-vis the highest level of education completed, it is relatively more challenging to measure poverty. This section explores fundamental methods to poverty measurements taken into account by the international community.

2.3.1 Money-metric poverty

The literature on money-metric poverty centralises income and consumption as objective measures of poverty. The use of monetary measures of poverty is justifiable because money can purchase any input to attain a required level of utility (National Development Agency, 2014). This approach is deemed functional and simple to quantify because it contains a number of individuals who fulfil the minimum specified income threshold, known as a poverty line. Therefore, the setting of a poverty line constitutes a critical aspect of the estimation of poverty (Armstrong *et al.*, 2008). The two commonly used poverty lines include absolute and relative poverty lines (Govender *et al.*, 2007).

Absolute approach

The absolute approach to poverty measurement constructs a line of income or expenditure that is imperative to obtain goods and services considered necessary for the fulfilment of the minimum standard of living (Ngwane *et al.*, 2001). Households are considered poor if their income is less than a certain minimum income level required to satisfy basic living needs. The value of an absolute poverty line is predetermined at a value of income and expenditure,

with the only alterations to the monetary value being modifications to account for inflation (Bhorat *et al.*, 2012). The two commonly adopted methods for setting absolute poverty lines are the cost-of-basic needs (CBN) and food-energy intake (FEI) (Ravallion, 1992; Van der Berg *et al.*, 2007; Streak *et al.*, 2009).

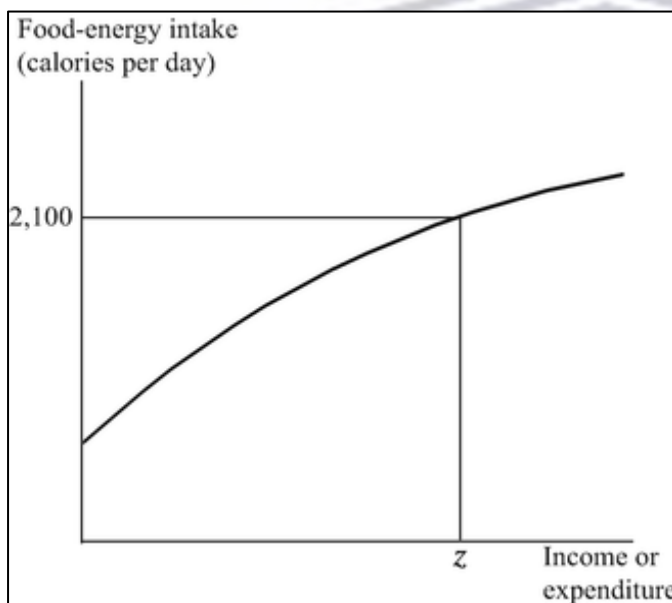
The notion behind the CBN method is that individuals should be able to pursue well-being. The CBN approach includes a bundle of basic consumption and assesses whether the population has adequate access (Wong, 2012). It first selects a reference group of likely poor households and scrutinises the level and type of food expenditures to create a food basket that determines the shares of food types in that basket. Then, poverty lines are obtained based on the cost of a bundle of goods that correspond with an arbitrarily chosen minimum level of well-being, based on nutritional requirements and basic non-food needs (Arndt & Simler, 2005; Leibbrandt & Woolard, 2006). Computation of non-food items is done by either considering the average non-food share of those households whose food expenditure equals the food poverty line (FPL) or whose total expenditure equals the food poverty line (Klasen *et al.*, 2016). At the equivalence of food expenditure and the food poverty line, households can satisfy basic food and non-food needs (StatsSA, 2008).

Following Budlender *et al.* (2015), the main advantage of using the CBN approach is that it is non-normative (or semi-normative) in its prescription of the goods needed to be non-poor. However, one drawback rests in its inconspicuousness on who is expected to be the reference group for the poverty food basket in a country between those proximate to the poverty line or all those below it, which will impact the outcomes (Klasen *et al.*, 2016). The other limitation of the basic needs consumption bundle is the probability of utility inconsistency (Ravallion & Lokshin, 2003), mainly due to fluctuating prices that almost certainly vary from one region to another.

Greer and Thorbecke (1986) put forward an approach of quantifying the food poverty line at which a household's food-energy intake is adequate to fulfil the predetermined necessary quantity of daily calories. The FEI method refers to a minimum food caloric intake needed to maintain a human body at rest (Ravallion, 1998). The objective is to obtain the level of consumption expenditure or income that qualifies a household to acquire sufficient food to satisfy its energy requirements (Haughton & Khandker, 2009).

The caloric required to determine the food poverty line is a contentious issue, with Stats SA (2015) reporting a caloric benchmark of 2 100 kilocalories (kcal) per person per day while it was set at 2 261 kcal per day in 2008. Nonetheless, a poor household lies below the line and either consumes deficient calories for nourishment or must modify consumption patterns from those preferred by low income households (Kroll, 2016). The approach is further illustrated in Figure 1, depicting the observed relationship between food-energy intake and aggregate income or expenditure. The curve can establish the food poverty line required to satiate food-energy requirements and represents the expected level of caloric intake; in this case, 2 100 calories per day, at a predetermined level of consumption (z).

Figure 1: The Food-Energy Intake (FEI) Method



Source: Ravallion (1998: 11).

Augmentation in income may lead to increments in food expenditures or aggregate calorie intake but this may not accord with a diet richer in nutrients. Households tend to expand the variety of their diets depending on other aspects apart from nutrient content, such as taste and quality (Salois *et al.*, 2012). Thus, the major shortcoming of the FEI approach is its failure to accommodate the changing needs of households, such as when they prefer expensive food based on taste rather than calories, as a result of a rise in income (National Development Agency, 2014). The minimum calories intake also does not consider the dietary quality and the one that is best suitable for the individual (Pérez-Escamilla & Segall-Corrêa, 2008). Moreover, the approach lacks consistency (Ravallion & Bidani, 1994). Excessive

expenditures are supposedly needed to fulfil the caloric standard in urban areas than in rural areas. The advantage of both the cost-of-basic needs and food-energy intake approaches is that they commensurate with the poor's expenditure, such as spending on education and health (Lekezwa, 2011).

Relative approach

The relative approach to poverty refers to low income relative to others in a country or economy. It considers a particular society's characteristics and seeks to distinguish households whose standard of living is unacceptably low relative to the rest of society (Bhorat *et al.*, 2012). Relative approach concentrates on the notion of requirements that differ depending on conditions such as a country's level of development or disproportion between the rich and poor (Leibbrandt & Woolard, 1999).

The relative poverty lines are some definite functions of a society's income or expenditure distribution (Foster, 1998). Two standard methods have been used to define the relative poverty lines, namely income levels and income positions (Bellù & Liberati, 2005). The income levels method set the poverty line at y percent of the national mean or median income or expenditure (Woolard & Leibbrandt, 1999). The poverty line may be established at a value of two-thirds of the mean or median value, and any household that falls below the established value is considered poor (Ngwane *et al.*, 2001).

The income positions method cuts off the p poorest percent of the population and use the level of income or expenditure at this point as the poverty line (Budlender *et al.*, 2015). Poor households fall below a given quintile (for example, poorest 20% or 40% of the population) of the income distribution classed in ascending order. Poor households are those experiencing relative deprivation, and since the standard of living is mutable, the relative poverty line also changes (Ravallion, 1992; Woolard & Leibbrandt, 1999). The main decision of the relative poverty lines is how much poorer than the rest of society a household must be to be stratified as poor but dismiss the juxtaposition of poverty over regions.

2.3.2 Non-money-metric poverty

The failure of monetary measures to contain multiple dimensions of poverty sparked interest in examining poverty beyond the scope of income and consumption (Hulme & Shepherd,

2003; Frame, 2016). Thus, the non-money-metric approach evolved due to the necessity to measure poverty explicitly by its many dimensions (Van der Walt, 2004).

The study of non-money measures of well-being relies on the construction of an asset index. It captures indicators that include the ownership of assets such as stove, fridge as well as access to services and facilities (e.g. piped water, electricity, frequent refuse removal) into a single index (Alkire & Santos, 2010, 2011) known as a non-income welfare index by applying statistical techniques like the Factor Analysis (FA), Multiple Correspondence Analysis (MCA) and Principal Components Analysis (PCA). The techniques that are essential in capturing non-monetary social indicators are, as a result, multidimensional. A variety of South African studies have used multidimensional measures that incorporate social indicators such as education, health and labour market status (Finn *et al.*, 2013; Bhorat *et al.*, 2014; Burger *et al.*, 2017).²

2.4 Theoretical framework

This study mainly focuses on the direct effects of education concerned with imparting knowledge and skills associated with higher wages in the labour market. In the economics of education literature, three main theories explain the importance of investing in human capital. Such mounting theoretical underpinning will be viewed through the lens of human capital, signalling as well as screening theories.

2.4.1 Human capital theory

The notion of human capital can be traced back to the work of Schultz in the early 1960s and further extended by Becker (1962) along with Mincer (1974). The human capital theory maintains the negative relationship between education and poverty to minimising poverty (Leibbrandt *et al.*, 2012). Individuals in possession of higher levels of education have favourable prospects of securing better employment opportunities with high earnings ratio than the less educated individuals (Bhorat, 2004). Thus, the concerted individual investments in human capital augment earnings and alleviate deprivation (Finn *et al.*, 2012).

The foundational narrative of the human capital theory assumes education is necessary to enhance the productive capacity of individuals. Education improves the broadly job-relevant

²It is common to apply the relative approach to identify the poor when using the non-income welfare index in analysing poverty (Jansen *et al.*, 2015).

skills and knowledge that contribute to an individual's productivity and thus, *ceteris paribus*, to higher earnings (Huntington-Klein, 2018). As a result, individuals will invest in their education until the gain in their marginal labour market productivity equals the marginal cost incurred in acquiring additional education (Kim & Sakamoto, 2005). Investment in human capital can be analysed by a more scientific approach of comparing the costs and benefits of educational investment.

Figure 2 weighs up the costs and benefits of acquiring education, which will expectantly be hindered by the anticipated earnings differential by the college graduate, thus justifying the decision to acquire more education. Prospective college students, typically high school seniors, are assumed to form expectations of the relevant costs and benefits of attending college, contingent on the information they have at that point (Catsiapis, 1987). The cost of four years in college consists of two types of costs; direct costs such as books and tuition fees as well as foregone earnings of not entering the labour market after high school, represented by indirect costs. In addition, expected financial aid in the terms of grants and scholarships are considered as part of benefits or reduction of the cost of college attendance.

Figure 1: Graphical illustration of human capital theory



Source: Yu & Roos (2018: 235).

College graduates have superiority in the labour market and are expected to earn more than high school leavers until they retire. Wage disparities between the more and less educated are the required compensation to adjust for the supplementary costs sustained in obtaining more human capital (Polacheck, 2007). Therefore, anticipated higher earnings by college graduates

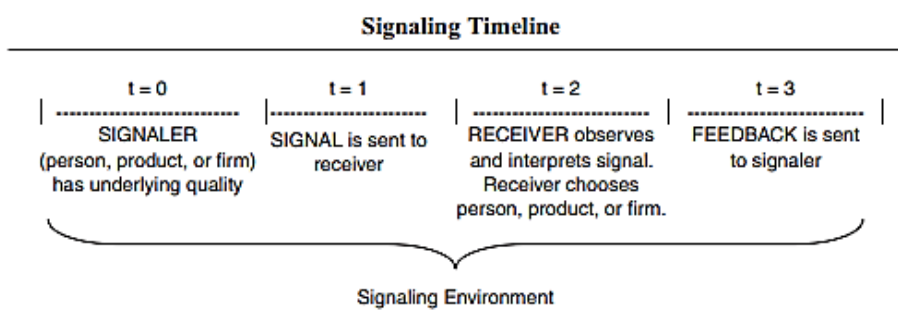
validate the decision to acquire more education (Borjas, 2009: 240), as shown by the steeper earnings curve of a graduate (person B) compared with that of the matriculant (person A).

If the costs are lower than the benefits of increased earnings obtainable in the future, then an individual will invest in college education. The investment decision requires a comparison of the present value of the annual increments to earnings with the present value of the direct and indirect costs (Brue & Grant, 2012: 547). The optimal choice is the one that maximises the expected net present value, provided that this maximum is positive; otherwise, education is terminated upon completion of high school.

2.4.2 Signalling theory

The other interpretation of the positive relationship between education and earnings is drawn from the signalling theory, largely attributed to Spence (1973). The theory is built on the postulation that, individuals with high intrinsic productivity levels distinguish themselves from those with low productivity by investing in education. Signalling theory suggests that education may not really improve students' productive capacity; instead, it serves as an effective method for workers to inform potential employers of their skills. It is extensively acknowledged that when recruiting new workers, employers are inclined to consider 'signals', that is, observable characteristics of candidates assumed to be reliable indicators of their qualities, particularly productivity (Bonoli & Liechti, 2014). Considering them in a hiring decision permits recruiters to swiftly minimise a large number of prospective applicants to a handful of candidates deemed most propitious. Hence, individuals complete a certain level of schooling to signal their intrinsic attributes optimally to employers.

Figure 2: Signalling theory's primary elements



Note: t = time.

Source: Cornell *et al.* (2011:44).

Figure 3 above further illustrates the signalling theory where the signaller and receiver are two main participants. The signaller incorporates an applicant who communicates their abilities to potential employers by tendering a résumé to be assessed for the vacancy they are interested in. The résumé contains a limited amount of information that the applicant believes will represent them positively during the recruitment process and should not exceed the information processing ability of the receiver. Should the applicant meet the prerequisites, including the level of schooling required, the receiver then sends a positive counter-signal or feedback by requesting additional information through an interview. On the other hand, should the applicant not meet the requirements of the position, a negative counter-signal is sent, not requesting any additional information (Spence, 2002).

Van der Berg (2008) maintains that education provides an upper hand as it primarily functions as a signal of ability to employers, allowing the more educated to secure more lucrative jobs. Accordingly, higher levels of schooling offer more advantage than lower levels as workers possess fundamental abilities and characteristics that can be easily conveyed to employers since multiple signals are imparted (Arcidiacono *et al.*, 2010). Nonetheless, Kjelland (2008: 70) argues that innate abilities lead to a rise in productivity and thereafter, better earnings ratios, not education itself. Huntington-Klein (2018) maintains that the debate between signalling and human capital theories remains unsettled partly because of the well-acknowledged fact that the effects of these theories are complicated to distinguish from each other empirically.

2.4.3 Screening model

One common perspective is that education augments earnings by yielding marketable skills. However, the contender of this human capital view, the screening theory, suggests that differences in earnings related to education do not predominantly indicate augmentation in individual productive capacity as a result of education but employers' use of education to establish pre-existing distinctions in ability (Layard & Psacharopoulos, 1974). The screening hypothesis posits that an individual's productivity is not directly affected by the formal schooling process since education only serves to provide a signal of higher ability. Such that the correspondence between education and earnings is assigned to the signalling effect of a degree or certificate (Rohling, 1986).

The theory holds that productivity is entirely innate and for that reason, entrenched (Layard & Psacharopoulos, 1974). Education is deduced to offering individuals with credentials that reveal their innate productivities and abilities to employers, where higher levels of educational attainment are linked with higher innate ability. Higher education is perceived as an endorsement to perform higher-level positions yielding higher wages (Brown & Sessions, 2004). Thus, higher wages of the more educated demonstrate remunerations for latent abilities sought by the employers.

According to the model, the uninformed side of the market, the employer, makes observations to reduce information asymmetry. Since productivity is complex to quantify, the job applicant must find indirect means of signalling their higher productivity to prospective employers. The screening hypothesis also implies that some features of an individual's schooling record are very informative to employers. For employers, education is a screening tool to access quickly and cheaply the productivity levels and abilities of potential employees. Screening theory rates education as a filter that enables the selection between educated individuals according to their applicable qualities (Soukup, 2007). Thus, employers with imperfect information about potential employees may use education as a proxy or sorting device to assist in assessing the future worth of an employee (Dias & Posel, 2007). The employer will provide wages contingent on the investment decision, whereas the job applicant will consider one maximising their utility.

Despite equivocal views, the sheepskin hypothesis is considered one of the testable predictions of the screening theory. The sheepskin effects of education query whether it is years of schooling or highest qualifications that are paramount (Arabsheibani & Manfor, 2001). According to Groot & Oosterbeek (1994), the screening hypothesis predicts that: (i) more rapid completion of a degree signals greater ability and should therefore result in higher earnings, and (ii) years spent in education without obtaining a degree should not increase earnings. Therefore, the sheepskin prediction asserts that wages will increase rapidly with supplementary years of education when an additional year also confers a certificate (Riley, 1979).

2.4.4 Other theories

Instrumental studies on poverty contend that poverty is also propelled by hindrances external to individuals. The relationship between education and poverty is also directly or indirectly

unravelling by other postulations such as behavioural, institutional and political theories, and this sub-section will only briefly discuss one as a case in point.

The behavioural theory emphasises individual behaviours as propelled by incentives and culture and remarkably associate low education and unemployment with poverty in many aspects (Rainwater & Smeeding, 2003). The theory suggests that the destitute are poor because they partake in counterproductive and poverty instigating risks (Bertrand *et al.*, 2004). These risks include being irresponsible, making poor choices and not staying in schooling (Sleek, 2015). The key fundamental proposition is that, despite the accessibility of other alternatives, individuals still make choices that restrain their access to economic resources, heighten their risk of being poor (Blank, 2010). In this regard, individuals are responsible for their encounters with poverty, which are essentially connected to completely individual deficiencies (Davis & Sanchez-Martinez, 2014).

Nonetheless, poverty foists other extrinsic limitations on poverty-stricken individuals that aggravate the detrimental impacts of the behavioural bias. In setting aspirations, Dalton *et al.* (2014) assert that extraneous limitations make the poor more vulnerable to an aspirations failure: they tend to settle for the low level of aspiration and effort compared to the best outcome they could have achieved. Poverty precipitates cognitive burden, presents bias and stress, subsequently stimulating poverty-perpetuating behaviours such as low educational attainment (Brady, 2019). In the absence of higher education, which is mainly a prerequisite for employment that provides a living wage and opportunities for advancement, individuals are most likely to remain poor, owing to the compelling notion that higher education leads to stronger labour power. However, the latter will once again result in greater employment prospects and higher earnings (Keswell & Poswell, 2004), and subsequently lower poverty probability.

Poverty and education are inextricably linked with the relationship running in both ways (Njong, 2010). Income poverty can be a major impediment in acquiring access to education, obstructing individuals from meeting the high direct costs of education, nor bearing the opportunity costs of education (Tilak, 2002). Also, poor individuals are likely to quit school to seek for work, with inadequate imperative literacy and numeracy skills that provide better access to employment opportunities, thereby intensifying poverty likelihood (Armstrong *et al.*, 2008).

2.5 Review of past empirical studies

While various studies on education and poverty prevail in the South African literature, most of them concentrate on the overall population (Van der Berg, 2008; Botha, 2010; Argent *et al.*, 2010) while others focus on certain regions (Rena & Wanka, 2019). Moreover, most of these studies found an inverse relationship between education and poverty in South Africa, by dint of the labour market.

First, Argent *et al.* (2010) used various data sets from the 1993 Project for Statistics on Living Standards and Development (PSLSD), the Labour Force Survey (LFS) and Income and Expenditure Survey (IES) for 2000; and the National Income Dynamics Study (NIDS) for 2008 to examine inequality and poverty in South Africa from 1993 to 2008. Using the upper and lower poverty lines (at 2008 prices) of R949 and R515, the study revealed that the highest poverty incidence was found amongst the younger cohorts. Youth aged 16-20 years had a headcount ratio above 0.6 in all years, whereas it remained constant at 0.49 for those aged 21-30 years. In contrast to the adult cohort aged 31-59 years, the headcount ratio was slightly above 0.4 throughout the period. The results took place despite improvements in educational attainment among the younger cohort. These findings implied the labour market was not prosperous in mitigating poverty by absorbing better educated young people.

Only one domestic study that directly investigated the impact of educational attainment on poverty, however, it focused only on the overall population. Botha (2010) used the IES 2005/2006 data to investigate the relationship between education and poverty in South Africa. Two poverty lines taken into account within the study were equivalent to R7 929 and R5 122 per adult equivalent per annum and set at 20th and 40th percentiles of adult equivalent consumption, respectively. Where the head was in possession of post-secondary education, a household was 37.19% less likely at the 40th percentile poverty line and 15.93% less likely at the 20th percentile poverty line to be poor compared to a household in which the head had no education. The results also demonstrated that poverty was less prevalent and severe amongst households in which the head had some level of literacy, justified by significant differences in the headcount index. At both 20th and 40th percentile poverty lines, the headcount index was twice as high if the household head could neither read nor write than if the head could read or write. The study concluded that low educational attainment was associated with greater likelihood of poverty.

Since the results of the reviewed studies demonstrated that the impact of educational attainment on poverty was directly linked to wage employment, the educational attainment-labour market relationship will be reviewed. First, Mlatsheni & Rospabé (2002) used the 1999 October Household Survey (OHS) to evaluate the aspects of unemployment among the youth aged between 15 and 30 years. The study separated the economically active population between the wage employed and self-employed. Using the multinomial logit regression model, the results showed that lesser access to the labour market was found amongst those with low levels of educational attainment, females, Africans, Northern Province (now Limpopo) inhabitants and those who were neither married nor heads of the family. Surprisingly, rural residents showed higher odds of securing a job than a considerable share of urban residents whose probabilities of wage employment and self-employment declined by 20% and 33%, respectively. Education was found to have a beneficial impact on the access to wage employment as higher levels of educational attainment (technical certificates or university degrees) proffered three times more chances of securing a job than no schooling.

A study by Armstrong & Burger (2009), which primarily investigated the impact of social grants on poverty and inequality in South Africa, employed the Foster-Greer-Thorbecke (FGT) index (as well as the General Entropy (GE) measure) and analysed the 2005 IES data to provide an overview of poverty by educational attainment of the household head. The results in all FGT measures exhibited a similar trend, that is, poverty subsided with increases in the educational attainment of a household head. The headcount ratio statistics indicated that 76% of household heads with no schooling lied below the poverty line in contrast to 64% amongst those with incomplete primary schooling, 43% for those with incomplete secondary schooling, 16% for those who have completed Matric, 3% and only below 1% for those with post-secondary education and graduates, respectively. The study concluded that despite education not being the only factor in poverty reduction, the probability of being deprived declined with an increase in the household head's educational attainment.

Despite concentrating on the causes of unemployment and wage subsidy, Yu (2012) examined the demographic and education characteristics of the youth labour force using the 1995-1999 OHS, 2000-2007 LFS and 2008-2011 Quarterly Labour Force Surveys (QLFS) data sets. To examine the likelihood of participation and employment, the study employed a Heckman method and findings demonstrated that the likelihood of being employed among

the youth rose with an increase in the level of education. In all labour surveys, those with Matric were less likely to secure employment opportunities than those with degrees. At all educational attainment levels, youth aged 18-29 years were more likely to be unemployed compared to all adults cohort ranging from 30 years and above. Females and African youth had less access to work opportunities in contrast to their male and other population group counterparts, respectively. It was evident in the QLFS 2011Q3 where the unemployment rate among African youth in possession of degrees and those with Matric was over 10% higher compared to Coloureds and Whites.

Branson *et al.* (2013) analysed variations in the distribution of education across birth cohorts and alterations in employment likelihood from 1994 to 2010 using national household survey data, consisting of the OHSs in the 1990s, LFSs 2000-2007 and the General Household Surveys (GHS) conducted in 2008-2010. The results showed that when comparing the younger cohort (aged 15-30 years) with the older cohort, the younger cohort had more significant proportions of post-Matric education graduates than their predecessors. Despite that, the youth had not benefitted from the increase in the premium attached to tertiary education as they were more vulnerable to unemployment, leading to high levels of poverty. The results were consonant with the study outcome by Argent *et al.* (2010) reviewed earlier.

Frame *et al.* (2016) utilised the National Census 2011 data to quantify the nature and extent of multidimensional poverty among youth aged 15-24 years in South Africa across relatively small geographical regions. The study adopted the youth Multidimensional Poverty Index (MPI), determined by Alkire and Foster's method of measuring multidimensional poverty and included 11 indicators over four dimensions (namely economic opportunities, education, health and living environment). The outcomes showed that the spatial distribution of multidimensional youth poverty over municipalities was highly unequal, with the highest levels of youth poverty predominantly taking place in the former homeland areas. For example, the Youth MPI was the highest in Eastern Cape and KwaZulu-Natal at 0.267 and 0.192, compared to 0.102 and 0.107 of Gauteng and Western Cape, respectively.

An analysis of the composition of the youth MPI was carried out to exhibit which specific indicators or dimensions were escalating youth poverty. The outcomes revealed that educational attainment (35.6%) and economic opportunities at 30.9%, which consisted of

household adult employment and NEET (individual not in education, employment or training), were the highest contributors to the youth MPI score.

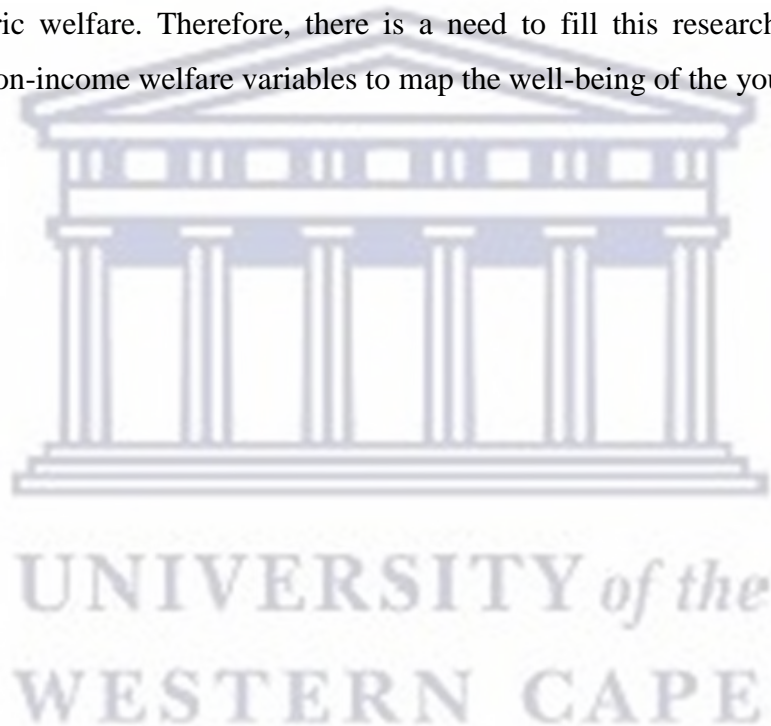
With reference to international studies, Njong (2010) employed a logistic regression to investigate the impact of distinct education levels of employed individuals upon the probability of being poor, using the 2001 Cameroonian Household Survey. The results revealed that negative coefficients on education levels progressively declined from no schooling through university level for both genders, with males experiencing significantly lower declines than their female counterparts. The study outcomes showed that the poverty likelihood of the employed declined at these levels of education. That is, the higher the level of educational attainment, the greater the poverty-reduction impact.

Awan *et al.* (2011) adopted the Household Integrated Economic Survey (HIES) of 1998/99 and 2001/02 as well as the logistic regression technique to determine the effect of education on poverty in Pakistan. The outcomes of the logistic regression were in conformity with the conventionally notion that educational attainment was a paramount determinant of the incidence of poverty. The outcomes demonstrated that middle, Matric, intermediate and bachelor degree educational attainment variables were declining the poverty likelihood of the employed persons relative to the reference category 'primary education' by 57.5%, 79.7%, 89.2% and 96.6% in 1998/99 as well as 54.8%, 78.5%, 88.9% and 97% in 2001/02, respectively. Educational achievement was found to be negatively related to the poverty incidence in both years.

Lastly, DeNavas-Walt & Proctor (2015) used the 2015 Current Population Survey (CPS) Annual Social and Economic Supplement (ASEC) data to determine poor incidence over time. With educational attainment as the focal point of this study, only 4.4% of those with at least a bachelor degree suffered poverty compared to 30% with no high school diploma in 2013. In 2014, 28.9% of people aged 25 years and older without a high school diploma were in poverty, 14.2% with high school but no college, 10.2% with some college but no degree and 5% with at least a bachelor's degree. There were no significant changes in poverty rates between 2013 and 2014. Overall, the poverty rate declined with increases in levels of educational attainment.

2.6 Conclusion

The reviewed empirical studies deduce that poverty reduction is associated with higher levels of education. Regrettably, these studies did not comprehensively investigate the relationship between education and poverty for the youth cohort (or compared what happened between the youth and non-youth cohorts). Some of the studies focused only on the overall population with no segregation by age cohorts, while others prioritised small geographical regions. In addition, there were hardly any domestic studies that empirically analysed the relationship between educational attainment and poverty with an explicit interest in youth while also using the Living Conditions Surveys (LCSs), which is still a rarely used data source that actually captures comprehensive information on educational attainment, money-metric and non-money-metric welfare. Therefore, there is a need to fill this research gap while also examining the non-income welfare variables to map the well-being of the youth.



CHAPTER THREE: METHODOLOGY AND DATA

3.1 Introduction

Chapter Three focuses on the data and methodology that will be used to derive the results and fulfil the objectives of the study. The chapter is structured as follows: Section 3.2 explores the data used for analysis, whilst Section 3.3 examines the methodology used in the study. Furthermore, Section 3.4 concludes the chapter.

3.2 Data

The study will use the Living Conditions Surveys (LCS) conducted every five years by Statistics South Africa for the periods 2008/09 and 2014/15. LCS 2008/09 took place between September 2008 and August 2009 and LCS 2014/15 was conducted between October 2014 and October 2015. Across these years, the sample size for South Africa was approximately 31 473 and 30 818 for the LCS 2008/09 and LCS 2014/15, respectively. The primary aim of the survey is to present data that will contribute to a better understanding of multiple facets of the living conditions of South African households. It gathers information ranging from income and expenditure, subjective assessment of poverty, health status, access to services and household asset ownership. It is worth noting that the LCS respondents who were still enrolled in school are included in the analysis.

3.3 Methodology

Empirically modelling will be employed to investigate the extent of youth poverty due to educational attainment. The study will first derive descriptive statistics on money-metric and non-money-metric poverty by educational attainment of youth and compare with non-youth before conducting a multivariate econometric analysis. Therefore, this sub-section will discuss the factor analysis (FA) method used to derive the multidimensional non-income-welfare index, Foster-Greer-Thorbecke (FGT) model, econometric model to determine the link between poverty and education, including other explanatory variables along with the decomposition of poverty by income source.

3.3.1 Derivation of a non-income welfare index

In an attempt to measure non-income well-being, the study will depend on the formulation of an asset index. Filmer & Scott (2012) argue that asset-based measures better apprehend long-run well-being compared to income or expenditure. The asset index aims to map the well-

being of households as the weighted sum of indicators of household ownership of assets and access to services. To attain that aim, the study will apply the factor analysis model, as used by Sahn & Stifel (2000).

Factor analysis (FA)

The FA depends on the postulation that observed variables are linear combinations of some common fundamental factors (Lelli, 2001). The FA assumes that the ownership of an asset is correlated to a latent variable, that is, well-being. The majority of asset indices follow the same method which takes the following form:

$$a_{ik} = \beta_k c_i + u_{ik} \dots \dots \dots (1)$$

Where ownership, represented by a_{ik} of the i -th household's asset, k , is linearly related to a common factor, c_i , called the household welfare. The estimated value of β shows the robustness of the relationship. One shortcoming of this underlying model is that the explanatory variable, c_i , and its coefficient, β are unobservable, but allows for the direct estimation of the relationship.

The factor analysis emanates from the presumption that the links between variables in question can be narrowed to a square correlation matrix. Deriving from the notation of Equation (1), the correlation matrix takes the form a_{ik} , which shows the unique correlations between the k assets and services across the i households. The FA entails minimising the correlations into a single unique, common factor, illustrated by f_{1i} . The values incorporated in the matrix are often regarded as factor loadings for the first common factor. These factor loadings can be derived by dividing the relevant factor by the number of assets, thus giving the percent of a variance explained in that asset by the factor, and serving as a point of departure for constructing an asset index (Bhorat & Van der Westhuizen, 2013). The information from the unique factor loadings is used to derive:

$$c_i = f_1 a_{i1} + f_2 a_{i2} + \dots + f_k a_{ik} \dots \dots \dots (2)$$

Where f_1, \dots, f_k show the weights projected onto the observed assets owned and services received by households. These values are commonly referred to as scoring coefficients, which are then normalised to derive an asset index for each household. The normalisation is

around the mean and standard deviation of each asset. Thus, the asset index is constructed in this manner:

$$A_i = f_1 \left(\frac{a_{i1} - u_1}{s_1} \right) + f_2 \left(\frac{a_{i2} - u_2}{s_2} \right) + \dots + f_k \left(\frac{a_{ik} - u_k}{s_k} \right) \dots \dots \dots (3)$$

Where u_k and s_k depict the mean and standard deviation for asset or service k , respectively. Asset poor households have low index scores whereas those with high asset index scores will be considered relatively better off regarding access to services and asset ownership.

Non-income welfare indicators

To assess well-being, two groups of non-money-metric variables from the LCS will be used when conducting the FA to derive the non-income welfare index: household services and facilities, along with household private assets. Table 1 presents a detailed list of variables.

Table 1: Non-income welfare indicators

Household services	Household private assets
Energy source for cooking	Landline telephone
Energy source for lighting	Mobile telephone
Dwelling type	Television
Wall of main dwelling	Radio
Roof of main dwelling	Stove
Water source	Washing machine
Sanitation facility	Microwave oven
	Fridge
	Motor vehicle
	Computer
	Internet connection
	Camera

Source: LCS of 2008/09 and 2014/15.

3.3.2 Measuring poverty

Poverty lines are pre-established levels of living standards that must be attained for a household not to be classified as poor. The study will adopt the recent lower-bound poverty line (LBPL) suggested by StatsSA (2019), approximated at R689 in 2016 December prices (it

is currently the base month in the StatsSA CPI series) or R810 in 2019 December prices, per capita per month, to identify the money-metric poor. To derive these values, two different sets of non-food expenditure are obtained from two separate reference groups of households and added to the food poverty line to yield the lower-bound and upper-bound poverty lines (UBPL) StatsSA (2019). For non-money metric poverty, the study will employ the relative approach and the FA-derived welfare index valued at 40th percentile in both survey periods. To determine the changes in welfare, the Foster-Greer-Thorbecke (FGT) propounded by Foster, Greer and Thorbecke in 1984 will be used.

With the exception of poverty decomposition by income source, money-metric poverty analysis will involve the use of per capita consumption variable because consumption is captured better than income in developing countries. Yu (2016) stated that such is mainly due to the reliance on informal and agricultural undertakings and high volatility of income (consumption seasonal fluctuations are supposedly smaller than seasonal income fluctuations). Meyer & Sullivan (2003) note that measures grounded in consumption fairly encapsulate the most deprived relative to income as they make allowances for ownership of durable goods, use of anti-poverty programs, access to credit and savings usage. Moreover, consumption is slightly liable to underestimation bias as more deprived households tend to detail their consumption more precisely relative to income.

Foster-Greer-Thorbecke (FGT)

The Foster-Greer-Thorbecke poverty measures will be computed to assess the incidence, depth and severity of poverty among the youth aged 15-34 years and non-youth cohort aged 35-64 years. The monotonicity, flexibility and distributional sensitivity axioms of the index make it the most commonly used poverty index (Armstrong & Burger, 2009).

The Foster-Greer-Thorbecke consists of three measures namely; the headcount index (P_0), the poverty gap index (P_1) and the squared poverty gap index (P_2). The FGT model can be depicted mathematically as:

$$P_\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^\alpha, \alpha \geq 0 \dots \dots \dots (4)$$

Where α is a measure of the sensitivity of the index to poverty, n is the sample size and q is the number of poor individuals. The z represents the poverty line, y_i is the measure of the income of the i -th households. The poverty gap for individual i is $(z - y_i)$ which is equal to 0 when $y_i > z$. For $\alpha > 0$, the measure is strictly declining in the living standard of the poor. The $\alpha > 1$ has the property stating that the rise in measured poverty resulting from a decline in a household's standard of living will be considered greater the poorer the household is. The measure is considered to be strictly convex in incomes and weakly convex for $\alpha = 0$.

[A]: Headcount index (P_0)

The headcount index (P_0) is the most frequently deployed measure that evaluates the fraction of the population considered as poor in a country, depicted as:

$$P_0 = \frac{q}{n} \dots \dots \dots (5)$$

Denoted by P_0 , the headcount index is computed by considering the aggregate number of people in a country who are below a pre-established income level and dividing by the total population as illustrated in detail below:

$$P_0 = \frac{1}{n} \sum_{i=1}^q I(y_i < z) \dots \dots \dots (6)$$

Here, if the bracketed expression is correct, $I(.)$ takes on a value of 1 and 0 otherwise. For example, if expenditure y_i is less than the poverty line z , then $I(.)$ equals 1 and the household would be regarded poor. The headcount ratio limitation is that it does not consider the degree of poverty (Serumaga-Zake & Naudé, 2002). For instance, it is not impacted by a policy that can make the poor even poorer (Deaton, 1998).

[B]: Poverty gap index (P_1)

The poverty gap index measures the intensity of poverty. Depicted by P_1 , the index measures the depth of poverty in a household based on income and assigned poverty line (Foster *et al.*, 2010). The poverty gap index also shows the amount of income it would take to get a household off poverty (Lekezwa 2011). When $\alpha = 1$, $P_\alpha = P_1$ and the poverty gap index is formally demonstrated as:

$$P_1 = \frac{1}{n} \sum_{i=1}^q \left[\frac{z - y_i}{z} \right]^\alpha \dots \dots \dots (7)$$

The poverty line z with the subtraction of actual income y_i explains the poverty gap P_1 . Household incomes exceeding the poverty line are not taken into account as P_1 is a measure of the depth of poverty below the poverty line. The index is insensitive to the distribution of income among the poor as increments in the poorest households' income (whereas the income of the least poor diminishes by a similar value) will not alter the poverty gap index (Tregenna, 2012).

[C]: Squared poverty gap index (P_2)

The squared poverty gap index depicts the distribution of poverty below the poverty line (Satumba *et al.*, 2017). According to Lekezwa (2011), the index emphasises households whose incomes rest below the poverty line. P_2 is computed as the severity of the poverty measure and results from the poverty gap and inequality amongst poor households (Ravallion, 1992: 39). The index is written as:

$$P_2 = \frac{1}{n} \sum_{i=1}^q \left(\frac{G_i}{z} \right)^\alpha, \quad (\alpha \geq 0) \dots \dots \dots (8)$$

Where α measures the sensitivity of the index to poverty and the poverty gap for households is depicted by $G_i = z - y_i$, where $G_i = 0$ when $y_i > z$. When parameter $\alpha = 2$, P_2 is the squared poverty index. The measure implicitly puts more weight on observations that lie below the poverty line by squaring the poverty gap index. Thus, it permits different weights to be placed on the poor's income level, but it is difficult to interpret.

3.3.3 Econometric model

Probit regression

The study will use a probit model to ascertain the influence educational attainment has on youth poverty. This technique was also adopted by Botha (2010) in analysing the influence of educational attainment on household poverty. Probit regression is employed to determine variables that are pivotal in determining the poverty status of a household. Because of the binary nature of the dependent variable (poverty) that carries two values (poor or non-poor),

the probit model is appropriate for the study. Poor households are assigned a value of one and zero if non-poor (Gujarati, 2003: 608).

The study will consider other explanatory variables other than educational attainment, anticipated to affect poverty. The econometric model will be depicted as follows:

$$Poor (P = 1) = F(\beta_0 + \Sigma\beta_{1k}educ + \beta_2gen + \beta_3race + \beta_4rural + \beta_5prov + \beta_6other) \dots \dots \dots (9)$$

The detailed variables include the following person- and household-level variables:

- Age cohort dummy variables (to distinguish youth from non-youth)
- Gender dummy variables (reference category: female)
- Population group dummy variables (reference category: African)
- Area type dummy variables (reference category: rural)
- Province dummy variables (reference category: Western Cape)
- Educational attainment (years of education, years of education squared, and years of education spline variables)
- Labour market status (reference category: inactive)
- Household size
- Number of children (0-14 years) in the household
- Number of other male adult members (15-59 years) in the household
- Number of other female adult members (15-59 years) in the household
- Number of elderly members (at least 60 years) in the households

Bivariate probit model

Money-metric and non-money-metric poverty are distinct but kindred occurrences. In the next step, a bivariate probit model will be adopted to gauge the joint probability that a household can be money-metric poor and non-money-metric poor. The bivariate probit model will provide a suitable setting for estimating the existence of the interdependence on a binary outcome variable. The standard model supposes a constant treatment effect, the existence of exclusion restriction, and the exclusion of simultaneity (Winkelmann, 2011). Conventionally, the structural model comprises of two latent equations:

$$y_1^* = x\beta + \alpha y_2 + \varepsilon_1 \dots \dots \dots (10)$$

$$y_2^* = z\gamma + \varepsilon_2 \dots \dots \dots (11)$$

Where the error terms are independent of x and z but not necessarily independent of each other. Furthermore, the observed binary outcomes are:

$$y_1 = 1(y_1^* > 0), y_2 = 1(y_2^* > 0) \dots\dots\dots (12)$$

The joint distribution of y_1 and y_2 (conditional on x and z) has four elements:

$$P(y_1 = 0, y_2 = 0|x, z) \dots\dots\dots (13)$$

$$P(y_1 = 1, y_2 = 0|x, z) \dots\dots\dots (14)$$

$$P(y_1 = 0, y_2 = 1|x, z) \dots\dots\dots (15)$$

$$P(y_1 = 1, y_2 = 1|x, z) \dots\dots\dots (16)$$

The distribution is determined immediately when the joint distribution of ε_1 and ε_2 is realised. The bivariate probit model evaluates the correlation between the error terms of the two equations, denoted by correlation coefficient ρ . If ρ is greater than zero, then the error terms of the two equations are correlated and the two outcomes are best modelled jointly (Oyekale, 2015). The model assumes that ε_1 and ε_2 have joint distribution function demonstrated as:

$$F(\varepsilon_1, \varepsilon_2) = \Phi_2(\varepsilon_1, \varepsilon_2, \rho) \dots\dots\dots (17)$$

Where Φ_2 indicates the cumulative density function of the bivariate standard normal distribution and ρ the coefficient of correlation. The four elements of the bivariate probit model are presented and summarised in Table 2 below.

Table 2: Poverty status of population group

		Non-money-metric poverty status	
		Poor	Non-poor
Money-metric poverty status	Poor	[A]	[B]
	Non-poor	[C]	[D]
Total population [E] = [A] + [B] + [C] + [D]			

The bivariate probit model encompasses two binary dependent variables, namely money-metric and non-money-metric poverty status. Cell [A] illustrates the population that is both money-metric and non-money-metric poor, cell [B] denotes the population that is money-

metric poor but non-money-metric non-poor, cell [C] represents the population that is money-metric non-poor but non-money-metric poor, and lastly the population that is neither money-metric poor nor non-money-metric poor is indicated by cell [D]. The total poor population delineated by [E], is a tally of [A], [B], [C] and [D]. Each probit is represented in this manner:

- Money-metric poverty rate: $([A] + [B]) / [E]$
- Non-money-metric poverty rate: $([A] + [C]) / [E]$
- Probability of people being both money-metric and non-money-metric poor: $[A]/[E]$
- Bivariate probit: $([A] + [B]) / [E]$ and $([A] + [C]) / [E]$

A bivariate probit model estimates the joint probability that a household is money-metric and non-money-metric poor. Estimating the joint probability makes it possible to account for the potential correlation between money-metric and non-money-metric poverty.

3.3.4 Poverty decomposition by income source

The prime purpose of studying the decomposition by sources is to examine how different sources influence a particular variable. Thus, different income sources will be used to examine the magnitude of their impact on poverty reduction, which is crucial for policy issues. The FGT poverty index can also be decomposed into a total of contributions from distinct income elements as indicated Araar & Duclos (2013). To decompose the contribution of each income source, the Distributional Analysis Stata Package (DASP) software which permits the contribution measurement of each factor to the aggregate change in poverty, will be used. The DASP software, applying the command *dfgts*, disintegrates the reduction of FGT poverty by income constituents. The FGT index takes the form as follows:

$$\hat{P} \left(z; \alpha; y = \sum_{k=1}^K S_k \right) = \frac{\sum_{i=1}^n w_i \left(1 - \frac{y}{z}\right)^\alpha}{\sum_{i=1}^n w_i}$$

Where w_i indicates the allocated weight to an individual, shown by i , and n is the sample size. In addition, K shows the number of income sources while S_k indicates the portion in aggregate income of each income source k . It evaluates the portion in sum income of each income source K , the absolute contribution of each source K to the value of $\hat{P} = 1$ and the relative contribution of each source K to the value of $\hat{P} = 1$.

The total income, grouped into six main sources, consists of both labour and non-labour incomes. As presented in Table A2 in the Appendix, the six income sources are mainly from wages, self-employment, rent and royalties, social grant, investment and other payments received (such as stokvel, tax refunds, sale of vehicle and property). Due to the pre-eminence of labour income in aggregate income, wage income tends to have a substantial part in money-metric poverty decomposition as a significant influencer of poverty reduction.

The analysis will permit the study to quantify the contribution changes of income sources and distinguish the contribution differences of the income sources on poverty reduction among youth and non-youth cohorts. This will be done by examining the absolute and relative contributions of each income component to poverty reduction. The negative sign on a decomposition term symbolises that an income element mitigates poverty.

3.4 Conclusion

Chapter Three expounded on the data and methodologies that will be employed in this study, that is, the LCS of 2008/09 and 2014/15. The FGT poverty measures will be adopted with the lower-bound poverty line approximated at R689 (in 2016 December prices) per capita income per month, to identify the money-metric poor. For non-money metric poverty, the study will use the relative approach and FA-derived welfare index value at the 40th percentile to distinguish non-money-metric poor households. A probit regression model will be exerted to ascertain the link between educational attainment and poverty, while a bivariate probit model will allow possible correlations between two outcomes. Lastly, the DASP software, implementing the command *dfgts*, will be used to decompose poverty by income source.

CHAPTER FOUR: EMPIRICAL FINDINGS

4.1 Introduction

As previously stated, the key objective of the study is to evaluate the significance of educational attainment on youth poverty using the LCS 2008/09 and 2014/15 data sets. Chapter Four consists of the analysis, presentation and interpretation of the empirical findings. This chapter commences by presenting the descriptive statistics of the variables of interests in Section 4.2, before the econometric analysis takes place in Section 4.3 by analysing the probit regression and bivariate probit model results. Section 4.4 examines the contribution of various income sources to a change in money-metric poverty with the aid of the DASP software package. Section 4.5 concludes the chapter, delivering a discussion on the link between educational attainment and youth poverty.

4.2 Descriptive statistics

Table 3 illustrates the population presence of youth and non-youth in South Africa. In both LCS survey periods, KwaZulu-Natal and Gauteng had the highest shares of the youth population, exceeding 20%. With regard to area type, about 63% of youth resided in urban areas in both survey periods (compared to a slightly higher 70% urban share for the non-youth). The population in urban areas grew marginally from 63.24% to 63.63% and 69.98% to 71.57% for youth and non-youth, respectively. A rise in the population in urban areas may be the reason for high levels of rural-urban migrations, especially to Gauteng, Durban and Cape Town due to rural poverty (Ruhiiga, 2014).

The female population was pre-eminent yet declined compared to their male counterparts, whose proportion increased. As expected, Africans accounted for the largest share of the population with over 80% youth and 70% non-youth. The share of all population groups contracted, except for the African population which slightly rose over time. One notable decline was within the white population, from 6.49% and 15.01% to 5.90% and 12.06% in youth and non-youth, respectively.

Table 3: Profile of the youth and non-youth in the weight sample (%)

	LCS 2008/09		LCS 2014/15	
	Youth	Non-youth	Youth	Non-youth
<u>Province</u>				
Western Cape	10.40	12.46	10.57	13.48
Eastern Cape	13.57	11.84	13.08	9.78
Northern Cape	2.15	2.46	2.16	2.22
Free State	5.84	6.25	5.29	5.24
KwaZulu-Natal	21.66	18.73	20.08	16.71
North West	6.65	7.58	6.69	6.93
Gauteng	21.20	25.65	22.69	30.14
Mpumalanga	7.51	6.53	8.25	7.11
Limpopo	11.03	8.50	11.19	8.37
	100.00	100.00	100.00	100.00
<u>Area type</u>				
Urban	63.24	69.98	63.63	71.57
Rural	36.76	30.02	36.37	28.43
	100.00	100.00	100.00	100.00
<u>Gender</u>				
Male	49.44	45.14	49.87	48.21
Female	50.56	54.84	50.13	51.79
	100.00	100.00	100.00	100.00
<u>Race</u>				
African	82.53	70.45	83.72	73.75
Coloured	8.49	11.14	8.12	10.84
Indian	2.49	3.39	2.26	3.35
White	6.49	15.01	5.90	12.06
	100.00	100.00	100.00	100.00
<u>Education</u>				
None	1.52	9.76	2.33	4.40
Incomplete primary	7.84	18.80	5.05	14.75
Incomplete secondary	59.47	40.52	57.14	41.65
Matric	20.37	14.12	27.68	20.96
Matric + Cert/Dip	7.18	8.72	4.58	6.65
Degree	2.42	6.62	3.94	9.08
Other/Unspecified	1.08	1.40	1.46	6.62
	100.00	100.00	100.00	100.00
<i>Mean (years)</i>	<i>9.94</i>	<i>8.48</i>	<i>10.29</i>	<i>9.34</i>
<u>Employment status</u>				
Not employed	63.61	38.62	63.90	38.59
Employed	36.39	61.38	36.10	61.41
	100.00	100.00	100.00	100.00

Table 3: Continued

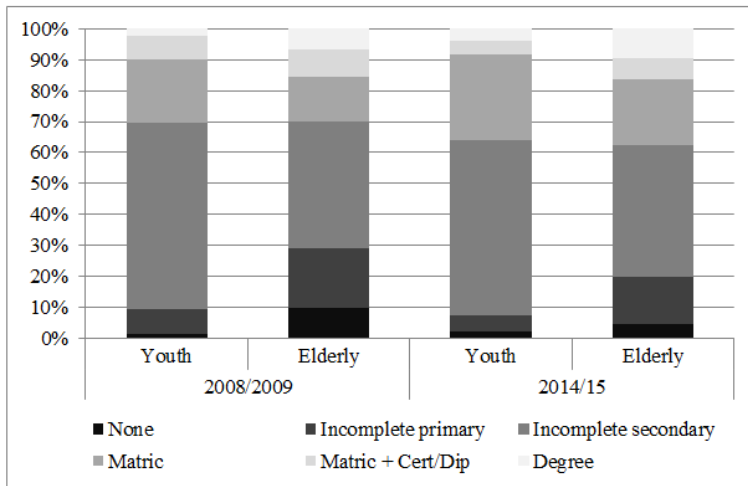
	LCS 2008/09		LCS 2014/15	
	Youth	Non-youth	Youth	Non-youth
<u>Household size</u>				
One person	5.32	7.31	5.36	6.48
Two persons	10.32	13.89	10.06	11.17
Three persons	13.05	14.36	13.31	14.39
Four to five persons	29.26	32.86	28.65	32.49
More than five persons	42.05	31.58	42.62	35.47
<i>Mean</i>	<i>5.46</i>	<i>4.75</i>	<i>5.57</i>	<i>4.76</i>
<u>Money-metric poverty status</u>				
Not poor	62.02	72.15	63.80	73.77
Poor	37.98	27.85	36.20	26.23
	100.00	100.00	100.00	100.00
<u>Non-money-metric poverty status</u>				
Not poor	59.61	69.52	79.29	84.39
Poor	40.39	30.48	20.71	15.61
	100.00	100.00	100.00	100.00

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

In general, educational attainment levels improved across both surveys. The share of youth with incomplete primary and secondary education declined yet increased for those with no schooling. A drastic increase of 7.31 percentage points for those with Matric and 1.52 percentage points for those with degrees was evidence of improved education amongst the youth. Within the non-youth population, the proportion with no schooling and incomplete primary education declined. The average years of education, depicted by the mean, accumulated in both cohorts but at a slightly higher rate among the non-youth.

Figure 4 illustrates the proportion of young people and non-youth by educational attainment levels using a 100% stacked column chart to expand on the education variable. The overall educational attainment levels for both groups increased significantly with substantial improvements in those with Matric. A considerable percentage of youth completed Matric relative to the non-youth (27.68% versus 20.96%, in the more recent 2014/15 wave of LCS). However, the latter were in possession of more high levels of education (post-Matric) than the former.

Figure 3: Percentage of youth and non-youth in each educational attainment category (%)



Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Reverting to Table 3, the results indicate a high unemployment rate of more than 60% among the youth compared to nearly 40% in the case of non-youth, in both surveys. The results implicate that the young population was associated with relatively greater unemployment probability (Anand *et al.*, 2016). The household size categorisation signifies the ordinary existence of large household sizes in South Africa: the mean household size was approximately 5.5 and 5.7 for youth and non-youth, respectively, in both periods. At least 60% of the youth and non-youth lived in households with a minimum of four people. The prevalence of relatively small households (three or fewer members) reduced for the non-youth (35.56% to 32.04) while it inconsiderably increased for youth (28.69% to 28.73%).

Table 3 further demonstrates the levels of deprivation that prevailed amid youth and non-youth based on money-metric and non-money-metric poverty status. The non-income poverty rate plummeted over the two periods by 20 percentage points for the youth compared to 15 percentage points for the non-youth. While money-metric poverty declined as well across surveys, the variations were inconsequential. The results portrayed declines in both money-metric and non-money-metric poverty likelihoods for both cohorts.

Table 4 exhibits the asset index's scoring coefficients, comprising of household assets and household private assets, generated by the factor analysis. Factor loadings are part of the results from factor analysis and exhibit relative importance and strength of the relationship between unobserved factors and observed variables. Loadings patterns are assessed to

determine the factor with most influence on the variable and signs of the values are also taken into account to dictate the direction of the correlation.

Table 4: Factor loadings of the dummy variables for the non-income welfare index

	LCS 2008/09	LCS 2014/15
Cooking: Electricity	0.6722	0.4859
Cooking: Gas	-0.0353	0.0329
Cooking: Paraffin/Coal	-0.4018	-0.3240
Lighting: Electricity	0.5917	0.4609
Lighting: Paraffin	-0.2686	-0.2197
Dwelling: Formal	0.5149	0.5742
Dwelling: Traditional	-0.4392	-0.5024
Roof: Asbestos	0.2049	0.1646
Roof: Bricks	0.0839	0.0778
Roof: Corrugated	-0.4221	-0.4631
Roof: Thatch	-0.2919	-0.2706
Roof: Tile	0.4938	0.4856
Wall: High	0.5713	0.5725
Wall: Medium	-0.4980	-0.5096
Water: Piped	0.7459	0.6707
Water: Public	-0.5616	-0.5093
Water: Borehole	-0.1682	-0.1048
Sanitation: Flush or chemical	0.7879	0.2004
Sanitation: Pit with ventilation	-0.2866	-0.4291
Sanitation: Pit without ventilation	-0.4973	-0.3231
Sanitation: Bucket	-0.1127	-0.0947
Refuse: Often	0.7282	0.6526
Refuse: Sometimes	0.0379	-0.0166
Refuse: Communal	-0.1016	-0.1607
Refuse: Own	-0.6310	-0.5774
Landline	0.4803	0.3655
Cellular	0.2322	0.1704
TV	0.5449	0.5057
Radio	0.1228	0.1444
Stove	0.2798	0.2148
Wash	0.6078	0.6009
Microwave	0.6422	0.6168
Fridge	0.5786	0.5369
Vehicle	0.5545	0.5495
Computer	0.4735	0.4908
Internet	0.3458	0.3796
Camera	0.4278	0.3803

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Constituents expressing higher living standards contribute positively to the asset index and otherwise for those with lower standards of living (Booyesen *et al.*, 2008). The first factor (electricity) attained a positive factor loading of 0.6722 and accounts for 0.5481 of the variance. Flush sanitation and piped water variables derived the largest positive factor loadings of 0.7879 in 2008/09 and 0.6707 in 2014/15, respectively. That is, ownership of or access to these assets was linked with higher welfare. The relatively big negative factor loadings were derived from access to gas for cooking (-0.0353) and collection of refuse removal – sometimes (-0.0166) in 2008/09 and 2014/15, respectively, signifying the weak influence of the factor on these variables.

Table 5 looks at four groups of youth by money-metric and non-money-metric poverty status:

- Group [I]: Money-metric poor; non-money-metric poor
- Group [II]: Money-metric poor; non-money-metric non-poor
- Group [III]: Money-metric non-poor; non-money-metric poor
- Group [IV]: Money-metric non-poor; non-money-metric non-poor

Table 5: Characteristics of the four groups of youth by money-metric and non-money-metric poverty status (%)

	LCS 2008/09				LCS 2014/15			
	[I]	[II]	[III]	[IV]	[I]	[II]	[III]	[IV]
<u>Province</u>								
Western Cape	2.13	12.23	3.98	16.40	1.34	9.23	4.67	14.03
Eastern Cape	20.48	8.98	19.03	9.32	31.64	10.05	28.96	7.83
Northern Cape	1.49	4.30	2.08	1.96	1.18	2.74	2.62	2.15
Free State	2.55	13.95	3.24	6.32	1.65	6.57	2.26	6.05
KwaZulu-Natal	28.09	17.75	25.46	18.00	31.62	21.33	26.32	16.04
North West	6.11	8.32	8.36	5.98	5.92	8.75	5.20	6.28
Gauteng	6.02	20.51	10.61	32.91	4.52	15.56	9.15	31.39
Mpumalanga	9.68	7.41	10.20	5.52	6.84	10.01	6.62	8.13
Limpopo	23.44	6.55	17.04	3.58	15.30	15.77	14.20	8.11
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<u>Area type</u>								
Urban	20.49	83.28	31.66	91.05	15.75	58.64	32.93	80.86
Rural	79.51	16.72	68.34	8.95	84.25	41.36	67.07	19.14
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<u>Gender</u>								
Male	45.53	46.72	54.46	50.72	46.59	46.70	57.74	51.06
Female	54.47	53.28	45.54	49.28	53.41	53.30	42.26	48.94

	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
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Table 5: Continued

	LCS 2008/09				LCS 2014/15			
	[I]	[II]	[III]	[IV]	[I]	[II]	[III]	[IV]
<u>Race</u>								
African	98.24	88.06	98.18	67.70	99.14	91.75	98.81	75.23
Coloured	1.62	10.86	1.73	13.69	0.86	8.01	0.85	10.77
Indian	0.00	0.55	0.09	5.10	0.00	0.10	0.15	3.86
White	0.14	0.53	0.00	13.51	0.00	0.14	0.20	10.14
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<u>Education</u>								
None	3.11	1.30	2.28	0.49	0.14	0.15	0.18	0.16
Incomplete primary	14.30	9.63	9.79	3.26	12.55	6.26	8.35	2.34
Incomplete secondary	68.84	68.98	65.46	50.04	72.33	67.78	68.31	48.13
Matric	10.63	15.80	16.40	28.09	12.25	22.08	19.28	34.58
Matric + Cert/Dip	2.01	2.95	4.20	12.01	0.62	1.65	1.70	6.98
Degree	0.06	0.18	0.37	4.92	0.35	0.54	0.44	6.48
Other/Unspecified	1.01	0.99	1.34	1.06	1.77	1.54	1.74	1.32
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<i>Mean (years)</i>	<i>8.71</i>	<i>9.42</i>	<i>9.37</i>	<i>10.91</i>	<i>8.88</i>	<i>9.69</i>	<i>9.49</i>	<i>10.95</i>
<u>Employment status</u>								
Not employed	82.08	76.64	60.65	51.12	83.34	78.10	65.68	53.48
Employed	17.92	23.36	39.35	48.88	16.66	21.90	34.32	46.52
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<u>Household size</u>								
One person	0.60	0.10	12.87	6.88	1.12	0.24	14.61	7.37
Two persons	3.06	1.86	19.73	13.54	3.85	2.47	19.79	13.44
Three persons	7.97	6.44	16.93	16.32	8.55	6.70	16.92	16.60
Four to five persons	22.21	26.67	25.12	35.06	21.69	21.96	25.87	33.21
More than five persons	66.16	64.93	25.35	28.2	64.79	68.63	22.81	29.38
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<i>Mean</i>	<i>7.20</i>	<i>7.01</i>	<i>4.21</i>	<i>4.50</i>	<i>7.28</i>	<i>7.50</i>	<i>3.98</i>	<i>4.58</i>

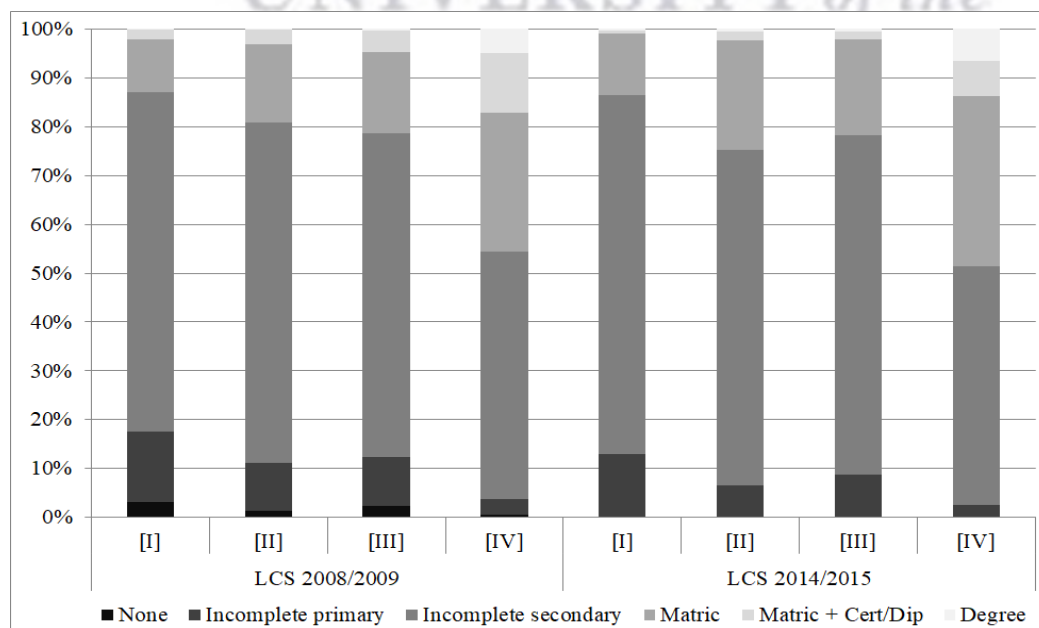
Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Across surveys, Eastern Cape and KwaZulu-Natal had the largest shares in group [I] while Gauteng dominated in group [IV]. The results suggest that a large number of both money-metric and non-money-metric poor young individuals were mainly found in Eastern Cape and KwaZulu-Natal whereas Gauteng predominantly accommodated those who were neither money-metric nor non-money-metric poor. Concerning the area type, over 80% of the youth in group [I] lived in rural areas compared to at least 15% in urban areas in 2014/15. Group [I]

was mainly characterised by the following attributes, namely rural populace, female, African, incomplete secondary, unemployed and lived in households with more than five members. Furthermore, the mean years of education show that youth in group [I] spent an average of eight years compared to 10 years for group [IV] across surveys. Thus, those who were both money-metric and non-money-metric poor spent fewer years in school relative to those who were neither money-metric nor non-money-metric poor.

To supplement the outcomes of the education variable, Figure 5 below illustrates the percentage of youth in each educational attainment category by poverty status. The most substantial positive effects of educational attainment on poverty were observed post-Matric, compatible with findings by Leibbrandt & Mlatsheni (2015). Of the youth in group [I] during 2008/09, 68.84% had incomplete secondary education compared to 10.63% with Matric and 0.06% in possession of degree level of education. Post-Matric education was mainly dominated by youth in group [IV] and the least by group [I] in both LCS surveys, underpinning that high education associates with low poverty. In essence, the results also reinforce the notion discussed earlier about the reciprocal relationship between poverty and education. Poverty can be a significant impediment in acquiring access to education; hence a greater proportion of either money-metric or non-money-metric poor or both had lower educational attainment levels.

Figure 4: Percentage of youth in each educational attainment category by poverty status (%)



Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Returning to Table 5 on the results by employment status and household size, it is worth noting that the largest portion (80%) of individuals ‘not employed’ belonged in the poorest group, and for the most part, group [I] consisted of youth from large households with more than five occupants. Thus, households with a large number of occupants tend to present high poverty levels than those with fewer inhabitants. The results are in consonant with the conclusion reached by Meyer (2016).

Table 6: Educational attainment of the four groups of youth and four groups of non-youth by money-metric and non-money-metric poverty status (%)

	LCS 2008/09				LCS 2014/15			
	[I]	[II]	[III]	[IV]	[I]	[II]	[III]	[IV]
<u>Youth</u>								
None	3.11	1.30	2.28	0.49	0.14	0.15	0.18	0.16
Incomplete primary	14.30	9.63	9.79	3.26	12.55	6.26	8.35	2.34
Incomplete secondary	68.84	68.98	65.46	50.04	72.33	67.78	68.31	48.13
Matric	10.63	15.80	16.40	28.09	12.25	22.08	19.28	34.58
Matric + Cert/Dip	2.01	2.95	4.20	12.01	0.62	1.65	1.70	6.98
Degree	0.06	0.18	0.37	4.92	0.35	0.54	0.44	6.48
Other/Unspecified	1.01	0.99	1.34	1.06	1.77	1.54	1.74	1.32
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<i>Mean (years)</i>	<i>8.71</i>	<i>9.42</i>	<i>9.37</i>	<i>10.91</i>	<i>8.88</i>	<i>9.69</i>	<i>9.49</i>	<i>10.95</i>
<u>Non-youth</u>								
None	24.77	12.00	17.24	3.28	1.09	0.35	0.52	0.14
Incomplete primary	35.23	28.17	27.67	10.36	34.10	22.31	27.52	9.07
Incomplete secondary	33.53	48.43	41.72	40.95	38.88	50.76	49.05	39.31
Matric	3.88	7.26	7.03	19.89	6.24	13.36	9.51	25.86
Matric + Cert/Dip	0.82	1.64	3.42	13.45	0.82	1.10	2.60	9.15
Degree	0.15	0.23	1.37	10.79	0.09	0.53	1.39	13.05
Other/Unspecified	1.42	2.05	1.43	1.27	18.77	11.60	9.40	3.42
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<i>Mean (years)</i>	<i>5.02</i>	<i>6.77</i>	<i>6.50</i>	<i>10.23</i>	<i>5.69</i>	<i>7.41</i>	<i>7.21</i>	<i>10.51</i>

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Table 6 above exhibits the educational attainment of youth and non-youth by four poverty status groups. For both cohorts, group [I], [II] and [III] were characterised by low levels of educational attainment, a typical attribute amongst those living in poverty. A huge percentage

of those in group [I], [II] and [III] were mainly in possession of education below Matric, whereas group [IV] was dominated by those with Matric and post-Matric education. The results strongly support the presumption that those who are neither money-metric nor non-money-metric poor are mainly in possession of higher education. In all surveys, the mean years of education for group [I] were eight and five for youth and non-youth, accordingly, compared to an average of 10 years for group [IV]. Meaning, the young population were more educated as they spent an average of at least two more years in school than the non-youth, except in group [IV] where the average was 10 years for both cohorts.

Table 7 represents the money-metric and non-money-metric poverty status of youth and non-youth by educational attainment. Of the youth and non-youth with degrees in both surveys, at least 95% were neither money-metric nor non-money-metric poor as represented by group [IV], and less than 1% of them belong in group [I]. Group [IV] accounted for considerable large shares of both youth and non-youth with high educational attainment levels prescribed by a minimum of Matric. The prevalence of predominantly low education levels in group [I], [II] and [III] validates that poverty was pervasive primarily among those with low education.

Furthermore, Table 7 weighs the differences in money-metric and non-money-metric poverty status groups of youth and non-youth by educational attainment. The positive results demonstrate a high share of youth in poverty status categories whereas the negative outcomes indicate a shortfall in the non-youth cohort. Differences in group [I] were all positive, elucidating that the youth were both money-metric and non-money-metric poor compared to the non-youth, irrespective of any level of educational attainment. For example, the share of poor youth with Matric in group [I] was 8.58 percentage points higher than the non-youth in the same category. The proportion of non-youth in group [IV] was always higher than the youth across all education splines except the 'none' category.³ For instance, the group [IV] share of the non-youth in Matric was 12.15 percentage points greater than youth in 2014/15.

³ Regarding Table 7, in unweighted terms, the number of youth in the 'none' category is very low – 13.10% in 2014/15 compared to 52.41% for the previous period. Hence, the results in connection with this group in Table 7 are interpreted with great caution.

Table 7: Money-metric and non-money-metric poverty status of the four groups of youth and four groups of non-youth by educational attainment, row totals (%)

	LCS 2008/09					LCS 2014/15				
	[I]	[II]	[III]	[IV]		[I]	[II]	[III]	[IV]	
<u>Youth</u>										
None	52.41	10.48	21.98	15.13	100.00	13.10	20.37	6.99	59.54	100.00
Incomplete primary	46.85	15.11	18.37	19.67	100.00	36.33	26.79	10.08	26.80	100.00
Incomplete secondary	29.73	14.26	16.19	39.81	100.00	18.50	25.60	7.28	48.61	100.00
Matric	13.40	9.54	11.84	65.23	100.00	6.46	17.21	4.24	72.08	100.00
Matric + Cert/Dip	7.18	5.05	8.60	79.16	100.00	1.98	7.76	2.27	88.00	100.00
Degree	0.63	0.92	2.27	96.18	100.00	1.30	2.98	0.68	95.05	100.00
<u>Non-youth</u>										
None	44.55	12.67	22.86	19.92	100.00	37.72	19.54	9.67	33.07	100.00
Incomplete primary	32.89	15.44	19.04	32.63	100.00	23.40	24.36	10.24	42.00	100.00
Incomplete secondary	14.52	12.31	13.32	59.85	100.00	9.45	19.63	6.47	64.45	100.00
Matric	4.82	5.30	6.45	83.44	100.00	3.01	10.26	2.49	84.23	100.00
Matric + Cert/Dip	1.66	1.94	5.08	91.32	100.00	1.25	2.65	2.15	93.95	100.00
Degree	0.39	0.35	2.67	96.58	100.00	0.10	0.94	0.84	98.11	100.00
<u>Difference: Youth versus non-youth</u>										
None	7.86	-2.19	-0.88	-4.79	N/A	-24.62	0.83	-2.68	26.47	N/A
Incomplete primary	13.96	-0.33	-0.67	-12.96	N/A	12.93	2.43	-0.16	-15.2	N/A
Incomplete secondary	15.21	1.95	2.87	-20.04	N/A	9.05	5.97	0.81	-15.84	N/A
Matric	8.58	4.24	5.39	-18.21	N/A	3.45	6.95	1.75	-12.15	N/A
Matric + Cert/Dip	5.52	3.11	3.52	-12.16	N/A	0.73	5.11	0.12	-5.95	N/A
Degree	0.24	0.57	-0.4	-0.4	N/A	1.2	2.04	-0.16	-3.06	N/A

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Table 8 results are based on examining the extent of poverty across youth and non-youth cohorts using the three most common poverty indices, namely the incidence of poverty (headcount ratio), poverty gap and severity of poverty. Also, the FGT measures were disaggregated in money-metric and non-money-metric poverty for youth and non-youth cohorts. In all surveys, money-metric poverty values of all indices were greater relative to non-money-metric poverty.

Non-money-metric headcount poverty reduced continuously, and these declines were more rapid than that of money-metric poverty. The headcount ratio displayed that 37.97% and 36.19% of young population were money-metric poor whereas 25.86% and 20.70% were

non-money-metric poor in 2008/09 and 2014/15, respectively. Similarly, the youth headcount ratio was higher compared to the non-youth cohort. In 2008/09, 37.97% of young individuals were money-metric poor relative to 27.84% for the non-youth cohort. In addition, the average intensity of money-metric poverty diminished while it increased for non-money-metric poverty among youth and non-youth, but the changes were insignificant. The depth and severity of poverty were much higher for money-metric poverty in contrast to non-money-metric poverty. Although youth poverty was higher in both years compared to the non-youth, the extent of poverty decline between the two survey years was more remarkable for youth.

Table 8: FGT poverty indices by youth cohort

	Money-metric poverty		Non-money-metric poverty	
	<u>Youth</u>			
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
Poverty headcount ratio (P_0)	0.3797	0.3619	0.2586	0.2070
Poverty gap ratio (P_1)	0.1468	0.1443	0.0653	0.0685
Squared poverty gap ratio (P_2)	0.0746	0.0770	0.0233	0.0349
	<u>Non-youth</u>			
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
Poverty headcount ratio (P_0)	0.2784	0.2622	0.1934	0.1561
Poverty gap ratio (P_1)	0.1029	0.1002	0.0500	0.0510
Squared poverty gap ratio (P_2)	0.0508	0.1031	0.0183	0.0639

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Table 9 presents the headcount poverty ratios by educational attainment. The results indicate that the youth were more money-metric than non-money-metric poor irrespective of any level of educational attainment, in both periods. Considering youth with incomplete secondary education, for instance, money-metric poverty rate was 43% but it was lower for non-money-metric poverty (26%) in 2008/09. In the same cohort, non-money metric poverty fell regardless of any level of education while money-metric poverty only contracted among those with at least Matric plus certificate (or diploma). For the most part, the young

population were generally more money-metric and non-money-metric poor at almost all levels of educational attainment in reference to the non-youth. For example, the non-money-metric poverty headcount ratio for those with Matric was 0.1070, which means that at least 10% of youth matriculants had less than the poverty cut-off point compared to 5.5% for the non-youth in 2014/15.

Table 9: FGT poverty headcount ratios by educational attainment and youth cohort

	Money-metric poverty		Non-money-metric poverty	
<u>Youth</u>				
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
None	0.6288	0.3346	0.5724	0.2008
Incomplete primary	0.6195	0.6311	0.4838	0.4640
Incomplete secondary	0.4399	0.4410	0.2947	0.2578
Matric	0.2293	0.2367	0.1341	0.1070
Matric + Cert/Dip	0.1223	0.0973	0.0805	0.0424
Degree	0.0155	0.0427	0.0162	0.0197
<u>Non-youth</u>				
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
None	0.5722	0.5725	0.4860	0.4738
Incomplete primary	0.4832	0.4775	0.3515	0.3364
Incomplete secondary	0.2682	0.2907	0.1616	0.1591
Matric	0.1011	0.1327	0.0543	0.0550
Matric + Cert/Dip	0.0360	0.0390	0.0325	0.0339
Degree	0.0074	0.0104	0.0104	0.0094

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Table 10 and 11 below show the FGT poverty gap and squared poverty ratios, respectively, by educational attainment levels for youth and non-youth cohorts. The outcomes explicate that poverty was less severe among youth and non-youth cohorts with at least Matric and predominantly declined with an increase in a level of education attained. Youth and non-youth with low levels of schooling mostly encountered the highest intensity and severity of money-metric and non-money-metric poverty. At all levels of education, money-metric poverty estimates were greater relative to non-money-metric poverty estimates.

Table 10: FGT poverty gap ratios by educational attainment and youth cohort

	Money-metric poverty		Non-money-metric poverty	
<u>Youth</u>				
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
None	0.2669	0.1305	0.1672	0.0840
Incomplete primary	0.2624	0.2980	0.1413	0.1835
Incomplete secondary	0.1695	0.1779	0.0737	0.0853
Matric	0.0820	0.0835	0.0286	0.0307
Matric + Cert/Dip	0.0407	0.0302	0.0156	0.0088
Degree	0.0042	0.0149	0.0035	0.0066
<u>Non-youth</u>				
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
None	0.2368	0.1936	0.1372	0.2065
Incomplete primary	0.1838	0.1989	0.0944	0.1186
Incomplete secondary	0.0935	0.1057	0.0385	0.0482
Matric	0.0309	0.0399	0.0126	0.0146
Matric + Cert/Dip	0.0121	0.0120	0.0062	0.0083
Degree	0.0028	0.0026	0.0019	0.0019

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Table 11: FGT squared poverty ratios by educational attainment and youth cohort

	Money-metric poverty		Non-money-metric poverty	
<u>Youth</u>				
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
None	0.1450	0.0662	0.0630	0.0460
Incomplete primary	0.1414	0.1754	0.0536	0.1024
Incomplete secondary	0.0856	0.0952	0.0261	0.0433
Matric	0.0398	0.0415	0.0094	0.0147
Matric + Cert/Dip	0.0192	0.0132	0.0050	0.0031
Degree	0.0016	0.0076	0.0011	0.0035
<u>Non-youth</u>				
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
None	0.1243	0.0830	0.0530	0.1161
Incomplete primary	0.0925	0.1077	0.0349	0.0618
Incomplete secondary	0.0444	0.0527	0.0134	0.0233
Matric	0.0135	0.0171	0.0040	0.0062
Matric + Cert/Dip	0.0053	0.0050	0.0020	0.0029
Degree	0.0014	0.0009	0.0005	0.0006

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

4.3 Econometric analysis

4.3.1 Probit model

Probit regression was conducted to determine the association of explanatory variables to a level of deprivation, illustrated by outcomes in Table 12-19. In the econometric analysis, differences in education are controlled for in two specifications: (1) years of education and years of education squared (to account for non-linearity between variables); (2) education spline variables. As shown in Table A3 in the Appendix, the education spline consists of years of completed schooling that correspond to a certain level of education. The first six years of completed education constitute a primary spline while the next five years, starting from Grade seven to 11, form part of the secondary spline. For example, Grade one and six have primary spline values of one and six, respectively while Grade seven and 11 have respective secondary spline values of one and five.

Table 13 demonstrates the marginal effects on money-metric poverty likelihood of all working-age population with interest on statistically significant variables (Table 12 rather shows the coefficients). The marginal effects indicate how much poverty changes when the explanatory variable varies. Bearing positive signs, the age cohorts 15-24 and 25-34 years suggest that people from these two youngest age cohorts were significantly more likely to be money-metric poor in both periods, juxtaposed with the 35-64 years reference category. The results in Table 13 are amplified further by Figure 6, illustrating that 15-24 year olds were about 11% significantly more likely to be money-metric poor while 25-34 year olds were 9% significantly more likely to be money-metric poor compared with reference category (non-youth aged 35-64 years) in the first period. These two respective marginal effects dropped to 7.5% and 6.5% in 2014/15, but the results remained statistically significant.

Table 15 presents the marginal effects on non-money-metric poverty likelihood of all working-age population with the non-youth aged 35-64 years as the reference group (whilst Table 14 shows the coefficients). The results were statistically different, demonstrating that relative to the non-youth, the youth cohorts aged 15-24 and 25-34 years were 6% and 7% (2008/09) as well as 4% and 3% (2014/15) more likely to be poor. The results are moreover augmented graphically by Figure 7 showing that the youth cohort aged 25-34 years had relatively larger declines in marginal effects even though they diminished by at least two percentage points in 2014/15 for both youth cohorts.

Table 12: Probit regressions on money-metric poverty likelihood (coefficients), all

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.3293*** (0.0184)	0.3461*** (0.0184)	0.2345*** (0.0198)	0.2430*** (0.0194)
Age cohort: 25-34 years	0.2776*** (0.0205)	0.2948*** (0.0206)	0.1962*** (0.0212)	0.2031*** (0.0206)
Province: Eastern Cape	0.1714*** (0.0365)	0.1757*** (0.0369)	0.2671*** (0.0380)	0.2740*** (0.0375)
Province: Northern Cape	0.3812*** (0.0382)	0.3771*** (0.0386)	0.1967*** (0.0400)	0.2166*** (0.0390)
Province: Free State	0.4309*** (0.0382)	0.4320*** (0.0386)	0.1612*** (0.0411)	0.1768*** (0.0404)
Province: KwaZulu-Natal	0.0721** (0.0365)	0.0789** (0.0369)	0.1351*** (0.0378)	0.1534*** (0.0373)
Province: North West	0.0445 (0.0394)	0.0420 (0.0398)	0.0765* (0.0413)	0.0975** (0.0406)
Province: Gauteng	-0.0827** (0.0377)	-0.0720* (0.0381)	-0.1342*** (0.0387)	-0.1248*** (0.0384)
Province: Mpumalanga	0.0893** (0.0382)	0.0948** (0.0386)	-0.0272 (0.0410)	-0.0047 (0.0402)
Province: Limpopo	0.4349*** (0.0391)	0.4460*** (0.0395)	0.1598*** (0.0404)	0.1718*** (0.0397)
Area type: Urban	-0.4104*** (0.0173)	-0.4104*** (0.0175)	-0.4780*** (0.0191)	-0.4699*** (0.0186)
Gender: Male	-0.0680*** (0.0150)	-0.0703*** (0.0151)	-0.0924*** (0.0165)	-0.0910*** (0.0160)
Population group: Coloured	-0.4748*** (0.0314)	-0.4827*** (0.0318)	-0.3437*** (0.0322)	-0.3380*** (0.0318)
Population group: Indian	-1.3730*** (0.1386)	-1.3520*** (0.1400)	-1.7822*** (0.1316)	-1.7961*** (0.1320)
Population group: White	-1.4535*** (0.0710)	-1.4183*** (0.0720)	-1.5252*** (0.1111)	-1.4991*** (0.1074)
Education spline: Primary	-0.0242*** (0.0054)		-0.0056 (0.0086)	
Education spline: Secondary	-0.1032*** (0.0053)		-0.1323*** (0.0052)	
Education spline: Matric	-0.2651*** (0.0242)	N/A	-0.6162*** (0.0541)	N/A
Education spline: Matric + Certificate / Diploma	-0.4847*** (0.0516)		Omitted (Collinearity)	
Education spline: Degree	0.1217*** (0.0196)		0.2278*** (0.0315)	
Years of education		0.0483*** (0.0072)		0.0627*** (0.0085)
Years of education squared	N/A	-0.0101*** (0.0005)	N/A	-0.0106*** (0.0006)
Child: 0-14 years	0.2625*** (0.0056)	0.2643*** (0.0057)	0.2083*** (0.0060)	0.2090*** (0.0058)
Elderly: >59 years	0.1442*** (0.0132)	0.1430*** (0.0133)	0.0280** (0.0135)	0.0245* (0.0130)
Male: 15-59 years	0.1122*** (0.0068)	0.1168*** (0.0068)	0.1334*** (0.0077)	0.1336*** (0.0075)
Female: 15-59 years	0.1210*** (0.0073)	0.1207*** (0.0073)	0.1401*** (0.0080)	0.1415*** (0.0078)
Pseudo R-squared	0.3134	0.3173	0.2729	0.2963
Chi-squared statistic	10047.90	10172.94	7130.45	8154.37
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	60 873	60 103	50 846	55 414

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table 13: Probit regressions on money-metric poverty likelihood (marginal effects), all

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.1085*** (0.0062)	0.1133*** (0.0062)	0.0775*** (0.0067)	0.0759*** (0.0062)
Age cohort: 25-34 years	0.0919*** (0.0070)	0.0971*** (0.0070)	0.0649*** (0.0072)	0.0634*** (0.0066)
Province: Eastern Cape	0.0568*** (0.0125)	0.0578*** (0.0126)	0.0913*** (0.0136)	0.0888*** (0.0129)
Province: Northern Cape	0.1342*** (0.0144)	0.1319*** (0.0145)	0.0670*** (0.0143)	0.0701*** (0.0134)
Province: Free State	0.1520*** (0.0145)	0.1516*** (0.0146)	0.0543*** (0.0144)	0.0564*** (0.0135)
Province: KwaZulu-Natal	0.0233* (0.0119)	0.0253** (0.0120)	0.0447*** (0.0128)	0.0479*** (0.0120)
Province: North West	0.0144 (0.0128)	0.0134 (0.0129)	0.0252* (0.0138)	0.0303** (0.0130)
Province: Gauteng	-0.0259** (0.0116)	-0.0224* (0.0117)	-0.0422*** (0.0119)	-0.0368*** (0.0110)
Province: Mpumalanga	0.0291** (0.0127)	0.0307** (0.0128)	-0.0087 (0.0130)	-0.0014 (0.0121)
Province: Limpopo	0.1523*** (0.0146)	0.1555*** (0.0148)	0.0535*** (0.0140)	0.0544*** (0.0131)
Area type: Urban	-0.1355*** (0.0060)	-0.1345*** (0.0060)	-0.1606*** (0.0067)	-0.1492*** (0.0063)
Gender: Male	-0.0216*** (0.0048)	-0.0222*** (0.0047)	-0.0297*** (0.0053)	-0.0274*** (0.0048)
Population group: Coloured	-0.1299*** (0.0073)	-0.1304*** (0.0072)	-0.0999*** (0.0084)	-0.0910*** (0.0077)
Population group: Indian	-0.2406*** (0.0080)	-0.2362*** (0.0081)	-0.2630*** (0.0047)	-0.2361*** (0.0044)
Population group: White	-0.2751*** (0.0051)	-0.2687*** (0.0052)	-0.2729*** (0.0060)	-0.2510*** (0.0054)
Education spline: Primary	-0.0077*** (0.0017)	N/A	-0.0018 (0.0028)	N/A
Education spline: Secondary	-0.0328*** (0.0017)		-0.0426*** (0.0017)	
Education spline: Matric	-0.0813*** (0.0071)		-0.1605*** (0.0105)	
Education spline: Matric + Certificate / Diploma	-0.1342*** (0.0119)		Omitted (Collinearity)	
Education spline: Degree	0.0387*** (0.0062)		0.0734*** (0.0101)	
Years of education	N/A	0.0152*** (0.0023)	N/A	0.0189*** (0.0025)
Years of education squared	N/A	-0.0032*** (0.0002)	N/A	-0.0032*** (0.0002)
Child: 0-14 years	0.0835*** (0.0019)	0.0834*** (0.0019)	0.0671*** (0.0020)	0.0630*** (0.0018)
Elderly: >59 years	0.0459*** (0.0042)	0.0451*** (0.0042)	0.0090** (0.0043)	0.0074* (0.0039)
Male: 15-59 years	0.0356*** (0.0022)	0.0369*** (0.0022)	0.0430*** (0.0025)	0.0403*** (0.0023)
Female: 15-59 years	0.0385*** (0.0023)	0.0381*** (0.0023)	0.0451*** (0.0026)	0.0427*** (0.0024)
Pseudo R-squared	0.3134	0.3173	0.2729	0.2963
Observed probability	0.3379	0.3378	0.3283	0.3186
Predicted probability	0.2503	0.2465	0.2564	0.2272
Chi-squared statistic	10047.90	10172.94	7130.45	8154.39
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	60 873	60 103	50 846	55 414

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table 14: Probit regressions on non-money-metric poverty likelihood (coefficients), all

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.3158*** (0.0214)	0.3256*** (0.0214)	0.2284*** (0.0239)	0.2149*** (0.0233)
Age cohort: 25-34 years	0.3238*** (0.0233)	0.3350*** (0.0235)	0.1881*** (0.0267)	0.1819*** (0.0258)
Province: Eastern Cape	0.7616*** (0.0484)	0.7584*** (0.0488)	0.7109*** (0.0478)	0.7371*** (0.0470)
Province: Northern Cape	-0.0178 (0.0586)	-0.0204 (0.0590)	0.0868 (0.0653)	0.1361** (0.0630)
Province: Free State	-0.3286*** (0.0638)	-0.3324*** (0.0644)	-0.4462*** (0.0625)	-0.3798*** (0.0602)
Province: KwaZulu-Natal	0.3217*** (0.0488)	0.3135*** (0.0493)	0.2642*** (0.0477)	0.3046*** (0.0476)
Province: North West	-0.3418*** (0.0531)	-0.3510*** (0.0536)	-0.4058*** (0.0579)	-0.3602*** (0.0564)
Province: Gauteng	0.1090** (0.0510)	0.1096** (0.0515)	-0.1479*** (0.0536)	-0.1123** (0.0527)
Province: Mpumalanga	-0.3359*** (0.0533)	-0.3523*** (0.0538)	-0.3978*** (0.0546)	-0.3739*** (0.0535)
Province: Limpopo	-0.0918* (0.0518)	-0.1025** (0.0523)	-0.2750*** (0.0509)	-0.2459*** (0.0501)
Area type: Urban	-1.2169*** (0.0201)	-1.2199*** (0.0203)	-1.1457*** (0.0230)	-1.1414*** (0.0222)
Gender: Male	0.0405** (0.0169)	0.0353** (0.0170)	0.0164 (0.0198)	0.0238 (0.0191)
Population group: Coloured	-0.9432*** (0.0568)	-0.9601*** (0.0577)	-1.0433*** (0.0584)	-1.0099*** (0.0562)
Population group: Indian	-1.7807*** (0.2243)	-1.7674*** (0.2259)	-1.2753*** (0.1302)	-1.3070*** (0.1325)
Population group: White	-1.6511*** (0.1318)	-1.6163*** (0.1338)	-1.4894*** (0.1747)	-1.1518*** (0.1549)
Education spline: Primary	-0.0513*** (0.0059)	N/A	-0.0339*** (0.0098)	N/A
Education spline: Secondary	-0.0949*** (0.0059)		-0.1361*** (0.0064)	
Education spline: Matric	-0.2303*** (0.0293)		-0.4846*** (0.0681)	
Education spline: Matric + Certificate / Diploma	-0.3455*** (0.0526)		Omitted (Collinearity)	
Education spline: Degree	0.1257*** (0.0206)		0.1578*** (0.0346)	
Years of education	N/A	-0.0030 (0.0080)	N/A	0.0444*** (0.0098)
Years of education squared		-0.0064*** (0.0006)		-0.0096*** (0.0007)
Child: 0-14 years	0.0732*** (0.0055)	0.0712*** (0.0056)	0.0506*** (0.0060)	0.0525*** (0.0058)
Elderly: >59 years	-0.0245* (0.0144)	-0.0266* (0.0145)	-0.1724*** (0.0151)	-0.1650*** (0.0144)
Male: 15-59 years	-0.0615*** (0.0077)	-0.0613*** (0.0078)	-0.0769*** (0.0083)	-0.0768*** (0.0080)
Female: 15-59 years	-0.0711*** (0.0080)	-0.0691*** (0.0081)	-0.1103*** (0.0089)	-0.1061*** (0.0085)
Pseudo R-squared	0.3420	0.3444	0.3160	0.3283
Chi-squared statistic	9579.80	9517.69	6907.11	7419.07
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	60 873	60 103	50 846	55 414

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table 15: Probit regressions on non-money-metric poverty likelihood (marginal effects), all

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.0675*** (0.0050)	0.0688*** (0.0050)	0.0415*** (0.0046)	0.0367*** (0.0042)
Age cohort: 25-34 years	0.0707*** (0.0056)	0.0724*** (0.0057)	0.0342*** (0.0051)	0.0311*** (0.0046)
Province: Eastern Cape	0.2030*** (0.0161)	0.1999*** (0.0161)	0.1675*** (0.0142)	0.1674*** (0.0141)
Province: Northern Cape	-0.0035 (0.0115)	-0.0040 (0.0114)	0.0157 (0.0124)	0.0239** (0.0120)
Province: Free State	-0.0551*** (0.0087)	-0.0548*** (0.0086)	-0.0587*** (0.0062)	-0.0484*** (0.0059)
Province: KwaZulu-Natal	0.0717*** (0.0121)	0.0688*** (0.0120)	0.0504*** (0.0100)	0.0557*** (0.0099)
Province: North West	-0.0571*** (0.0073)	-0.0575*** (0.0072)	-0.0552*** (0.0062)	-0.0468*** (0.0058)
Province: Gauteng	0.0226** (0.0109)	0.0224** (0.0109)	-0.0243*** (0.0083)	-0.0174** (0.0078)
Province: Mpumalanga	-0.0563*** (0.0074)	-0.0577*** (0.0072)	-0.0546*** (0.0060)	-0.0485*** (0.0055)
Province: Limpopo	-0.0176* (0.0095)	-0.0193** (0.0093)	-0.0409*** (0.0066)	-0.0346*** (0.0061)
Area type: Urban	-0.2989*** (0.0068)	-0.2967*** (0.0068)	-0.2500*** (0.0068)	-0.2377*** (0.0065)
Gender: Male	0.0081** (0.0034)	0.0070** (0.0034)	0.0028 (0.0034)	0.0038 (0.0031)
Population group: Coloured	-0.1177*** (0.0044)	-0.1169*** (0.0044)	-0.1032*** (0.0037)	-0.0934*** (0.0035)
Population group: Indian	-0.1286*** (0.0036)	-0.1262*** (0.0036)	-0.0975*** (0.0036)	-0.0906*** (0.0035)
Population group: White	-0.1525*** (0.0033)	-0.1487*** (0.0033)	-0.1128*** (0.0032)	-0.0980*** (0.0041)
Education spline: Primary	-0.0102*** (0.0012)	N/A	-0.0058*** (0.0017)	N/A
Education spline: Secondary	-0.0189*** (0.0012)		-0.0234*** (0.0012)	
Education spline: Matric	-0.0437*** (0.0053)		-0.0629*** (0.0062)	
Education spline: Matric + Certificate / Diploma	-0.0592*** (0.0076)		Omitted (Collinearity)	
Education spline: Degree	0.0251*** (0.0041)		0.0271*** (0.0059)	
Years of education	N/A	-0.0006 (0.0016)	N/A	0.0072*** (0.0015)
Years of education squared		-0.0012*** (0.0001)		-0.0016*** (0.0001)
Child: 0-14 years	0.0146*** (0.0011)	0.0140*** (0.0011)	0.0087*** (0.0010)	0.0085*** (0.0010)
Elderly: >59 years	-0.0049* (0.0029)	-0.0052* (0.0029)	-0.0297*** (0.0027)	-0.0266*** (0.0025)
Male: 15-59 years	-0.0123*** (0.0015)	-0.0121*** (0.0015)	-0.0132*** (0.0014)	-0.0124*** (0.0013)
Female: 15-59 years	-0.0142*** (0.0016)	-0.0136*** (0.0016)	-0.0190*** (0.0016)	-0.0171*** (0.0015)
Pseudo R-squared	0.3420	0.3444	0.3160	0.3283
Observed probability	0.2318	0.2316	0.1887	0.1854
Predicted probability	0.1199	0.1177	0.0972	0.0891
Chi-squared statistic	9579.80	9517.70	6907.11	7419.07
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	60 873	60 103	50 846	55 414

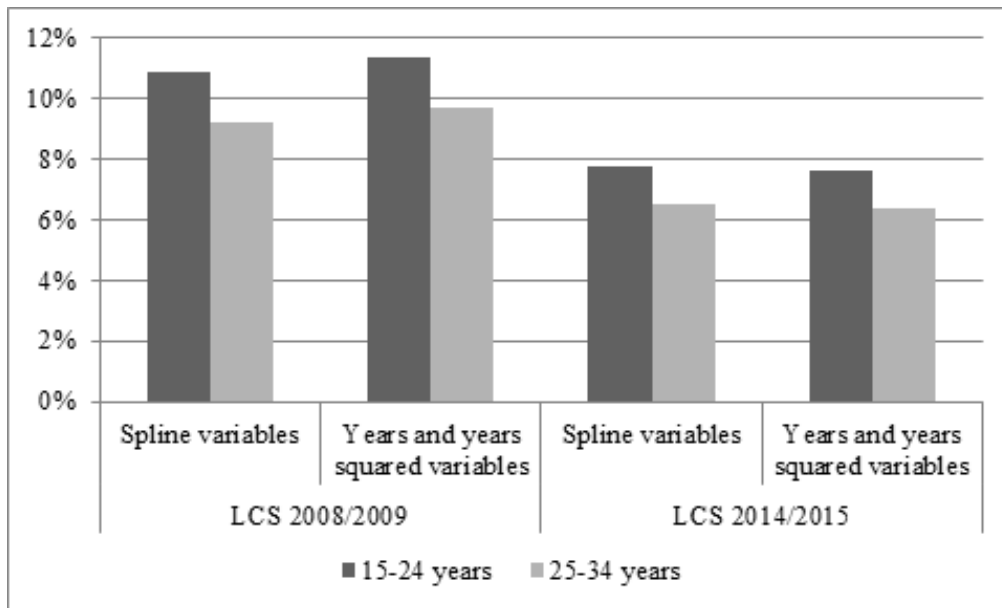
Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

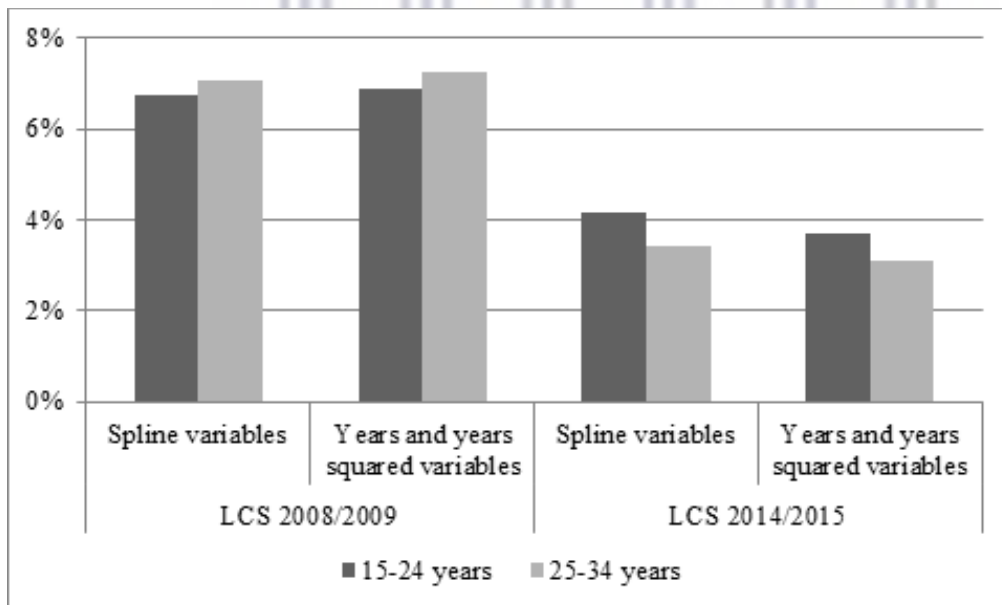
* Significant at 10%

Figure 5: Marginal effects of the youth cohort dummy variables in the money-metric poverty probit regressions



Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Figure 6: Marginal effects of the youth cohort dummy variables in the non-money-metric poverty probit regressions



Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Tables 16-19 present the outcomes of the probit regressions on money-metric and non-money-metric poverty with explicit focus on youth. The interest of the study rests largely on the marginal effects associated with each explanatory variable; hence the interpretation of

results will only be based on Tables 17 and 19. Based on Table 17, youth aged 15-24 years were around 1.5% more likely than the reference group (aged 25-34 years) to be money-metric poor in 2008/09, but the results were insignificant in 2014/15.

Eastern Cape, Northern Cape, Free State, Mpumalanga and Limpopo were the only provinces with statistically significant results in 2008/09. In the same period, Limpopo and Free State had the highest marginal effects of at least 16% on money-metric poverty likelihood compared to the Western Cape. In the 2014/15 period, Eastern Cape and Free State suffered the highest money-metric poverty probabilities of 9% and 7%, respectively, while Gauteng was 4.5% significantly less likely to be poor collated with Western Cape.

The findings of the area breakdown indicate that the urban population were less likely to be disadvantaged in contrast to their rural counterparts. Youth in urban areas were 15% and 17% less likely to be money-metric poor in 2008/09 and 2014/15, respectively than those in rural areas. Furthermore, males had an advantage of at least 3% in both periods over their female counterparts. When collated with Africans, all population groups had significantly lower money-metric poverty probabilities. In both surveys, whites had the greatest marginal impacts of at least 31% followed by Indians with a minimum of 29%. Coloureds were 10% significantly less likely to be money-metric poor in 2014/15 compared to Africans despite a fall of 6 percentage points from the previous period.

All other education category findings were statistically different, with the exception of primary education. In general, higher education years were associated with significantly lower poverty likelihood. For example, the marginal effect on secondary education of -0.0395 (2008/09) and -0.0513 (2014/15) suggested a decline in money-metric poverty of 3.95% as well as 5.13%, respectively for each additional year of secondary schooling attained. In absolute terms, the marginal effects became bigger across two survey years as the higher educational attainment had a stronger impact on money-metric poverty reduction in 2014/2015.

Table 16: Probit regressions on money-metric poverty likelihood (coefficients), youth

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.0460** (0.0199)	0.0402** (0.0201)	0.0349 (0.0213)	0.0315 (0.0210)
Province: Eastern Cape	0.1430*** (0.0466)	0.1453*** (0.0470)	0.2523*** (0.0490)	0.2550*** (0.0487)
Province: Northern Cape	0.3203*** (0.0505)	0.3285*** (0.0509)	0.1754*** (0.0520)	0.1822*** (0.0515)
Province: Free State	0.4271*** (0.0484)	0.4334*** (0.0489)	0.1988*** (0.0527)	0.2019*** (0.0522)
Province: KwaZulu-Natal	0.0591 (0.0459)	0.0706 (0.0463)	0.1333*** (0.0483)	0.1425*** (0.0479)
Province: North West	0.0346 (0.0507)	0.0370 (0.0512)	0.0999* (0.0533)	0.1001* (0.0529)
Province: Gauteng	-0.0769 (0.0477)	-0.0666 (0.0481)	-0.1300*** (0.0500)	-0.1346*** (0.0497)
Province: Mpumalanga	0.1087** (0.0481)	0.1132** (0.0486)	-0.0091 (0.0526)	0.0054 (0.0523)
Province: Limpopo	0.4473*** (0.0496)	0.4562*** (0.0501)	0.1440*** (0.0517)	0.1377*** (0.0512)
Area type: Urban	-0.4337*** (0.0223)	-0.4335*** (0.0224)	-0.4986*** (0.0244)	-0.5016*** (0.0243)
Gender: Male	-0.0891*** (0.0192)	-0.0906*** (0.0193)	-0.1099*** (0.0206)	-0.1081*** (0.0205)
Population group: Coloured	-0.5128*** (0.0406)	-0.5185*** (0.0410)	-0.3215*** (0.0419)	-0.3211*** (0.0417)
Population group: Indian	-1.4048*** (0.1760)	-1.3852*** (0.1775)	-1.7893*** (0.1695)	-1.7843*** (0.1694)
Population group: White	-1.4377*** (0.0930)	-1.4133*** (0.0941)	-1.6975*** (0.1648)	-1.6904*** (0.1654)
Education spline: Primary	-0.0088*** (0.0117)	N/A	-0.0112 (0.0180)	N/A
Education spline: Secondary	-0.1102*** (0.0071)		-0.1431*** (0.0068)	
Education spline: Matric	-0.2639*** (0.0277)		-0.5507*** (0.0688)	
Education spline: Matric + Certificate / Diploma	-0.4126*** (0.0564)		Omitted (Collinearity)	
Education spline: Degree	0.0828*** (0.0248)		0.1580*** (0.0346)	
Years of education	N/A	0.0809*** (0.0143)	N/A	0.1168*** (0.0168)
Years of education squared	N/A	-0.0120*** (0.0009)	N/A	-0.0136*** (0.0010)
Child: 0-14 years	0.2551*** (0.0071)	0.2573*** (0.0072)	0.1957*** (0.0075)	0.1969*** (0.0075)
Elderly: >59 years	0.1891*** (0.0178)	0.1880*** (0.0179)	0.0777*** (0.0174)	0.0717*** (0.0173)
Male: 15-59 years	0.0995*** (0.0084)	0.1035*** (0.0085)	0.1206*** (0.0098)	0.1228*** (0.0097)
Female: 15-59 years	0.1324*** (0.0091)	0.1333*** (0.0092)	0.1434*** (0.0100)	0.1447*** (0.0099)
Pseudo R-squared	0.2947	0.2974	0.2579	0.2729
Chi-squared statistic	6116.76	6134.96	4397.14	4715.42
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	34 704	34 323	29 647	30 643

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table 17: Probit regressions on money-metric poverty likelihood (marginal effects), youth

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.0164** (0.0071)	0.0144** (0.0072)	0.0125 (0.0076)	0.0109 (0.0072)
Province: Eastern Cape	0.0524*** (0.0174)	0.0531*** (0.0175)	0.0937*** (0.0187)	0.0919*** (0.0182)
Province: Northern Cape	0.1213*** (0.0198)	0.1243*** (0.0200)	0.0650*** (0.0198)	0.0655*** (0.0192)
Province: Free State	0.1629*** (0.0191)	0.1652*** (0.0193)	0.0738*** (0.0201)	0.0727*** (0.0195)
Province: KwaZulu-Natal	0.0213 (0.0167)	0.0255 (0.0168)	0.0486*** (0.0178)	0.0502*** (0.0172)
Province: North West	0.0125 (0.0184)	0.0133 (0.0185)	0.0365* (0.0198)	0.0353* (0.0190)
Province: Gauteng	-0.0273 (0.0167)	-0.0236 (0.0168)	-0.0457*** (0.0172)	-0.0454*** (0.0164)
Province: Mpumalanga	0.0397** (0.0179)	0.0413** (0.0181)	-0.0033 (0.0188)	0.0019 (0.0181)
Province: Limpopo	0.1698*** (0.0195)	0.1731*** (0.0197)	0.0528*** (0.0193)	0.0488*** (0.0185)
Area type: Urban	-0.1582*** (0.0082)	-0.1578*** (0.0083)	-0.1820*** (0.0090)	-0.1775*** (0.0088)
Gender: Male	-0.0318*** (0.0068)	-0.0324*** (0.0069)	-0.0394*** (0.0074)	-0.0373*** (0.0070)
Population group: Coloured	-0.1616*** (0.0109)	-0.1627*** (0.0110)	-0.1070*** (0.0129)	-0.1017*** (0.0121)
Population group: Indian	-0.3003*** (0.0136)	-0.2975*** (0.0140)	-0.3211*** (0.0074)	-0.2972*** (0.0069)
Population group: White	-0.3199*** (0.0082)	-0.3161*** (0.0085)	-0.3332*** (0.0086)	-0.3128*** (0.0078)
Education spline: Primary	-0.0032 (0.0042)		-0.0040 (0.0065)	
Education spline: Secondary	-0.0395*** (0.0025)		-0.0513*** (0.0024)	
Education spline: Matric	-0.0921*** (0.0093)	N/A	-0.1698*** (0.0172)	N/A
Education spline: Matric + Certificate / Diploma	-0.1347*** (0.0163)		Omitted (Collinearity)	
Education spline: Degree	0.0297*** (0.0089)		0.0566*** (0.0124)	
Years of education		0.0289*** (0.0051)		0.0403*** (0.0058)
Years of education squared	N/A	-0.0043*** (0.0003)	N/A	-0.0047*** (0.0003)
Child: 0-14 years	0.0913*** (0.0026)	0.0919*** (0.0027)	0.0701*** (0.0027)	0.0679*** (0.0026)
Elderly: >59 years	0.0677*** (0.0064)	0.0672*** (0.0064)	0.0278*** (0.0062)	0.0247*** (0.0060)
Male: 15-59 years	0.0356*** (0.0030)	0.0370*** (0.0031)	0.0432*** (0.0035)	0.0423*** (0.0034)
Female: 15-59 years	0.0474*** (0.0033)	0.0477*** (0.0033)	0.0514*** (0.0036)	0.0499*** (0.0034)
Pseudo R-squared	0.2947	0.2974	0.2579	0.2729
Observed probability	0.3798	0.3802	0.3738	0.3626
Predicted probability	0.3209	0.3193	0.3213	0.2943
Chi-squared statistic	6116.90	6135.10	4397.14	4715.43
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	34 704	34 323	29 647	30 643

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

The only unconventional finding was a significant but positive marginal impact of the degree spline, which may be attributed to the low proportion of people with a degree level of education as well as after controlling for other variations in characteristics. Moreover, the relationship between education years and money-metric poverty likelihood was concave, meaning money-metric poverty probability decreased at an increasing rate as the individual became more educated.

All four household-level variables were positive but statistically relevant, namely number of children aged 0-14 years, elderly aged at least 60 years, as well as number of male and female members aged 15-59 years. That is, these household variables increased the likelihood of money-metric poverty. For instance, a household with an additional child aged 0-14 years and elderly aged at least 60 years was 9% and 6% more likely to be money-metric poor, respectively, in the first survey period.

Table 19 presents the marginal effects of the probit regressions on the non-money-metric poverty likelihood of the youth. The 15-24 age group dummy was statistically insignificant in both years relative to the group aged 25-34 years. Only Gauteng (in 2008/09) and the Northern Cape (in 2014/15) had statistically insignificant results. In both periods, Eastern Cape and KwaZulu-Natal had the highest and only positive marginal effects. The non-money-metric poverty likelihood of the Eastern Cape was 21% and 15%, whereas it was 5% and 3% in KwaZulu-Natal in 2008/09 and 2014/2015, respectively.

The area disparities show that rural youth were disadvantaged as they were more likely to be non-money-metric poor than their urban counterparts. While the gender variable yielded non-statistically meaningful results, all population groups recorded statistically significant results and were less likely to be non-money-metric poor in comparison to Africans. For example, the likelihood of non-money-metric poverty for Coloureds was 16% (2008/09) and 12% (2014/15) less likely than Africans.

Table 18: Probit regressions on non-money-metric poverty likelihood (coefficients), youth

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	-0.0113 (0.0225)	-0.0173 (0.0227)	0.0280 (0.0255)	0.0141 (0.0253)
Province: Eastern Cape	0.6890*** (0.0578)	0.6896*** (0.0582)	0.6132*** (0.0608)	0.6240*** (0.0603)
Province: Northern Cape	-0.1874** (0.0737)	-0.1794** (0.0741)	-0.0412 (0.0852)	-0.0137 (0.0842)
Province: Free State	-0.3956*** (0.0754)	-0.3951*** (0.0762)	-0.5791*** (0.0819)	-0.5586*** (0.0807)
Province: KwaZulu-Natal	0.2213*** (0.0574)	0.2223*** (0.0579)	0.1704*** (0.0605)	0.1828*** (0.0602)
Province: North West	-0.4030*** (0.0643)	-0.4065*** (0.0647)	-0.5126*** (0.0725)	-0.4994*** (0.0721)
Province: Gauteng	0.0346 (0.0604)	0.0372 (0.0610)	-0.2697*** (0.0688)	-0.2564*** (0.0684)
Province: Mpumalanga	-0.4454*** (0.0637)	-0.4539*** (0.0642)	-0.5040*** (0.0685)	-0.4887*** (0.0681)
Province: Limpopo	-0.1699*** (0.0617)	-0.1807*** (0.0621)	-0.4201*** (0.0644)	-0.4117*** (0.0640)
Area type: Urban	-1.1929*** (0.0257)	-1.1953*** (0.0259)	-1.2049*** (0.0293)	-1.2019*** (0.0291)
Gender: Male	0.0159 (0.0213)	0.0108 (0.0215)	-0.0225 (0.0246)	-0.0134 (0.0243)
Population group: Coloured	-1.0317*** (0.0706)	-1.0354*** (0.0715)	-1.1301*** (0.0792)	-1.1277*** (0.0785)
Population group: Indian	-1.6102*** (0.2335)	-1.5915*** (0.2360)	-1.3512*** (0.2042)	-1.3461*** (0.2048)
Population group: White	-1.5271*** (0.1593)	-1.4910*** (0.1613)	-1.5371*** (0.2701)	-1.5375*** (0.2691)
Education spline: Primary	-0.0324** (0.0132)	N/A	-0.0494** (0.0204)	N/A
Education spline: Secondary	-0.1025*** (0.0076)		-0.1345*** (0.0082)	
Education spline: Matric	-0.2125*** (0.0330)		-0.5843*** (0.0845)	
Education spline: Matric + Certificate / Diploma	-0.3283*** (0.0595)		Omitted (Collinearity)	
Education spline: Degree	0.1155*** (0.0265)		0.1806*** (0.0438)	
Years of education	N/A	0.0307* (0.0163)	N/A	0.0891*** (0.0198)
Years of education squared		-0.0084*** (0.0010)		-0.0122*** (0.0012)
Child: 0-14 years	0.0764*** (0.0068)	0.0739*** (0.0069)	0.0501*** (0.0073)	0.0511*** (0.0073)
Elderly: >59 years	-0.0015 (0.0187)	-0.0008 (0.0188)	-0.1602*** (0.0189)	-0.1622*** (0.0187)
Male: 15-59 years	-0.0592*** (0.0092)	-0.0614*** (0.0093)	-0.0674*** (0.0102)	-0.0667*** (0.0101)
Female: 15-59 years	-0.0629*** (0.0098)	-0.0613*** (0.0099)	-0.0959*** (0.0108)	-0.0918*** (0.0107)
Pseudo R-squared	0.3101	0.3116	0.3105	0.3184
Chi-squared statistic	5814.53	5710.08	4500.88	4646.74
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	34 704	34 323	29 647	30 364

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table 19: Probit regressions on non-money-metric poverty likelihood (marginal effects), youth

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	-0.0028 (0.0056)	-0.0043 (0.0057)	0.0057 (0.0052)	0.0027 (0.0048)
Province: Eastern Cape	0.2112*** (0.0206)	0.2106*** (0.0207)	0.1580*** (0.0186)	0.1524*** (0.0178)
Province: Northern Cape	-0.0430*** (0.0153)	-0.0411*** (0.0155)	-0.0082 (0.0166)	-0.0026 (0.0157)
Province: Free State	-0.0827*** (0.0127)	-0.0822*** (0.0127)	-0.0859*** (0.0086)	-0.0768*** (0.0080)
Province: KwaZulu-Natal	0.0588*** (0.0161)	0.0589*** (0.0162)	0.0368*** (0.0137)	0.0370*** (0.0129)
Province: North West	-0.0843*** (0.0109)	-0.0844*** (0.0109)	-0.0798*** (0.0085)	-0.0718*** (0.0079)
Province: Gauteng	0.0088 (0.0154)	0.0094 (0.0155)	-0.0504*** (0.0117)	-0.0446*** (0.0109)
Province: Mpumalanga	-0.0917*** (0.0104)	-0.0925*** (0.0103)	-0.0796*** (0.0084)	-0.0715*** (0.0078)
Province: Limpopo	-0.0399*** (0.0135)	-0.0420*** (0.0134)	-0.0705*** (0.0090)	-0.0638*** (0.0083)
Area type: Urban	-0.3367*** (0.0081)	-0.3361*** (0.0081)	-0.2901*** (0.0085)	-0.2755*** (0.0087)
Gender: Male	0.0040 (0.0054)	0.0027 (0.0054)	-0.0045 (0.0050)	-0.0025 (0.0046)
Population group: Coloured	-0.1623*** (0.0061)	-0.1615*** (0.0061)	-0.1294*** (0.0052)	-0.1175*** (0.0050)
Population group: Indian	-0.1722*** (0.0054)	-0.1706*** (0.0056)	-0.1226*** (0.0055)	-0.1115*** (0.0052)
Population group: White	-0.1852*** (0.0052)	-0.1824*** (0.0054)	-0.1354*** (0.0049)	-0.1254*** (0.0045)
Education spline: Primary	-0.0081** (0.0033)	N/A	-0.0101** (0.0042)	N/A
Education spline: Secondary	-0.0257*** (0.0019)		-0.0275*** (0.0017)	
Education spline: Matric	-0.0512*** (0.0077)		-0.0866*** (0.0085)	
Education spline: Matric + Certificate / Diploma	-0.0722*** (0.0113)		Omitted	
Education spline: Degree	0.0290*** (0.0066)		0.0369*** (0.0089)	
Years of education	N/A	0.0077* (0.0041)	N/A	0.0169*** (0.0038)
Years of education squared		-0.0021*** (0.0002)		-0.0023*** (0.0002)
Child: 0-14 years	0.0192*** (0.0017)	0.0184*** (0.0017)	0.0102*** (0.0015)	0.0097*** (0.0014)
Elderly: >59 years	-0.0004 (0.0047)	-0.0002 (0.0047)	-0.0327*** (0.0040)	-0.0308*** (0.0037)
Male: 15-59 years	-0.0148*** (0.0023)	-0.0153*** (0.0023)	-0.0138*** (0.0021)	-0.0126*** (0.0019)
Female: 15-59 years	-0.0158*** (0.0025)	-0.0153*** (0.0025)	-0.0196*** (0.0023)	-0.0174*** (0.0021)
Pseudo R-squared	0.3101	0.3116	0.3105	0.3184
Observed probability	0.2586	0.2585	0.2135	0.2076
Predicted probability	0.1675	0.1663	0.1235	0.1112
Chi-squared statistic	5814.55	5710.11	4500.89	4646.74
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	34 704	34 323	29 647	30 643

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Except the number of elderly members aged at least 60 years variable in 2014/15, the results of the household-level variables were significant in explaining their influence on non-money-metric poverty. The presence of an additional child aged 0-14 years increased the likelihood of non-money-metric poverty in both periods. A household with an additional elderly aged at least 60 years was 3.08% less likely to be non-money-metric poor. Male or female aged 15-59 years in a household lessened the probability of being non-money-metric poverty.

The education spline yielded statistically significant outcomes such that the marginal effect of -0.0722 in 2008/09 on Matric + Certificate / Diploma education indicated that for each additional year of primary education obtained, the probability of falling into non-money-metric poverty reduced by 7.22%. Likewise, the marginal effect on secondary education of -0.0257 in the same period indicates a reduction in money-metric poverty of 2.57 % for each additional year of secondary schooling attained. One anomalous finding relates to a degree level of education which presented positive results. Nonetheless, in absolute values, the marginal effect became greater across the two survey years, leading to a decline in non-money-metric poverty at higher levels of education. Another interesting result is that the marginal impact for the variable “years of education” was positive, while that of “years of education squared” was negative. This result suggests that as an individual acquires more education, poverty likelihood declines; however, such decrease took place at an increasing rate.

Considering the anomalous results on the degree spline variable, the probit regressions were reproduced to include post-matric as presented in Tables A16-A19 in the Appendix. The post-Matric variable constitutes of all levels of educational attainment above Matric and displayed negative marginal effects across all cohorts. The marginal effects had larger magnitudes on money-metric poverty in contrast to non-money metric poverty. For instance, the 2014/15 period for the youth presented the post-matric marginal effects of -0.0916 and -0.0546 for money-metric and non-money-metric poverty. Thus, for each additional year of post-matric attained, the probability of falling into money-metric poverty declined by 9.16% compared to a reduction of 5.46% for non-money-metric poverty.

4.3.2 Bivariate probit model

Table 20 below presents the results of the bivariate probit regression on money-metric and non-money-metric poverty likelihoods with interest on youth only. One shortcoming of the

bivariate probit is that it is only possible to derive coefficients but not marginal effects. Therefore, the results of Table 20 will be compared with those of Tables 16 and 18 to determine the differences in coefficients in terms of magnitude and signs.

The results in Tables 16 and 18 based on province, area type, gender, population group and household variables yielded similar findings with the same pattern established in the bivariate probit regressions below. For example, all household variables on money-metric poverty were statistically significant and positive, while the area type variable depicted significant and negative results in all tables.



Table 20: Bivariate probit regressions on money-metric and non-money-metric poverty likelihoods (coefficients), youth

	LCS 2008/09				LCS 2014/15			
	Money-metric poverty		Non-money-metric poverty		Money-metric poverty		Non-money-metric poverty	
	[I]	[II]	[I]	[II]	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.0455*** (0.0197)	0.0397** (0.0199)	-0.0127 (0.0222)	-0.0188 (0.0225)	0.0350* (0.0212)	0.0316 (0.0209)	0.0278 (0.0253)	0.0147 (0.0251)
Province: Eastern Cape	0.1390*** (0.0468)	0.1407*** (0.0472)	0.6933*** (0.0578)	0.6938*** (0.0582)	0.2420*** (0.0487)	0.2440*** (0.0483)	0.5961*** (0.0597)	0.6053*** (0.0593)
Province: Northern Cape	0.3281*** (0.0509)	0.3361*** (0.0513)	-0.1138 (0.0714)	-0.1053 (0.0718)	0.1725*** (0.0511)	0.1792*** (0.0506)	-0.0163 (0.0841)	0.0046 (0.0833)
Province: Free State	0.4203*** (0.0484)	0.4257*** (0.0489)	-0.3740*** (0.0736)	-0.3741*** (0.0743)	0.1921*** (0.0522)	0.1950*** (0.0518)	-0.5658*** (0.0799)	-0.5485*** (0.0787)
Province: KwaZulu-Natal	0.0538 (0.0462)	0.0644 (0.0466)	0.2229*** (0.0575)	0.2244*** (0.0580)	0.1256*** (0.0477)	0.1349*** (0.0474)	0.1498** (0.0593)	0.1616*** (0.0590)
Province: North West	0.0407 (0.0506)	0.0423 (0.0511)	-0.3871*** (0.0639)	-0.3908*** (0.0644)	0.0952* (0.0529)	0.0950* (0.0524)	-0.5189*** (0.0707)	-0.5088*** (0.0703)
Province: Gauteng	-0.0761 (0.0476)	-0.0661 (0.0479)	0.0339 (0.0602)	0.0369 (0.0608)	-0.1352*** (0.0494)	-0.1396*** (0.0491)	-0.2920*** (0.0676)	-0.2803*** (0.0672)
Province: Mpumalanga	0.1091** (0.0481)	0.1123** (0.0485)	-0.4300*** (0.0635)	-0.4388*** (0.0640)	-0.0214 (0.0520)	-0.0070 (0.0517)	-0.5391*** (0.0679)	-0.5264*** (0.0674)
Province: Limpopo	0.4411*** (0.0495)	0.4485*** (0.0500)	-0.1626*** (0.0615)	-0.1734*** (0.0619)	0.1311** (0.0512)	0.1250** (0.0507)	-0.4363*** (0.0635)	-0.4297*** (0.0631)
Area type: Urban	-0.4327*** (0.0222)	-0.4336*** (0.0224)	-1.1917*** (0.0257)	-1.1941*** (0.0258)	-0.5083*** (0.0245)	-0.5117*** (0.0243)	-1.2098*** (0.0292)	-1.2076*** (0.0291)
Gender: Male	-0.0868*** (0.0191)	-0.0884*** (0.0192)	0.0194 (0.0212)	0.0141 (0.0214)	-0.1083*** (0.0205)	-0.1065*** (0.0204)	-0.0134 (0.0244)	-0.0037 (0.0241)
Population group: Coloured	-0.5150*** (0.0406)	-0.5210*** (0.0411)	-1.0624*** (0.0698)	-1.0662*** (0.0706)	-0.3279*** (0.0417)	-0.3272*** (0.0414)	-1.1381*** (0.0755)	-1.1358*** (0.0748)
Population group: Indian	-1.4037*** (0.1749)	-1.3838*** (0.1764)	-1.5821*** (0.2288)	-1.5597*** (0.2306)	-1.7816*** (0.1699)	-1.7755*** (0.1699)	-1.3636*** (0.2076)	-1.3588*** (0.2082)
Population group: White	-1.4716*** (0.0925)	-1.4473*** (0.0935)	-1.6083*** (0.1549)	-1.5727*** (0.1569)	-1.6911*** (0.1635)	-1.6834*** (0.1640)	-1.5173*** (0.2642)	-1.5159*** (0.2629)

Table 20: Continued

	LCS 2008/09				LCS 2014/15			
	Money-metric poverty		Non-money-metric poverty		Money-metric poverty		Non-money-metric poverty	
	[I]	[II]	[I]	[II]	[I]	[II]	[I]	[II]
Education spline: Primary	-0.0078 (0.0115)	N/A	-0.0310** (0.0129)	N/A	-0.0113 (0.0177)	N/A	-0.0489** (0.0203)	N/A
Education spline: Secondary	-0.1102*** (0.0070)		-0.1032*** (0.0075)		-0.1419*** (0.0067)		-0.1355*** (0.0081)	
Education spline: Matric	-0.2659*** (0.0276)		-0.2183*** (0.0329)		-0.5591*** (0.0691)		-0.5685*** (0.0813)	
Education spline: Matric + Certificate / Diploma	-0.4163*** (0.0571)		-0.3369*** (0.0597)		Omitted (Collinearity)		Omitted (Collinearity)	
Education spline: Degree	0.0787*** (0.0255)		0.1201*** (0.0264)		0.1602*** (0.0344)		0.1837*** (0.0423)	
Years of education	N/A	0.0835*** (0.0141)	N/A	0.0356** (0.0160)	N/A	0.1166*** (0.0167)	N/A	0.0903*** (0.0197)
Years of education squared		-0.0122*** (0.0009)		-0.0088*** (0.0010)		-0.0136*** (0.0010)		-0.0123*** (0.0012)
Child: 0-14 years	0.2574*** (0.0072)	0.2600*** (0.0073)	0.0771*** (0.0068)	0.0743*** (0.0068)	0.1973*** (0.0075)	0.1983*** (0.0074)	0.0475*** (0.0073)	0.0484*** (0.0072)
Elderly: >59 years	0.1920*** (0.0177)	0.1909*** (0.0178)	-0.0036 (0.0185)	-0.0021 (0.0186)	0.0769*** (0.0174)	0.0708*** (0.0174)	-0.1633*** (0.0188)	-0.1650*** (0.0186)
Male: 15-59 years	0.1015*** (0.0084)	0.1058*** (0.0085)	-0.0599*** (0.0090)	-0.0628*** (0.0092)	0.1225*** (0.0098)	0.1249*** (0.0097)	-0.0621*** (0.0099)	-0.0614*** (0.0099)
Female: 15-59 years	0.1325*** (0.0091)	0.1335*** (0.0092)	-0.0628*** (0.0097)	-0.0613*** (0.0098)	0.1455*** (0.0099)	0.1472*** (0.0099)	-0.0958*** (0.0106)	-0.0917*** (0.0105)
Chi-squared statistic	10628.47	789.609	10628.47	789.609	8387.66	8798.18	8387.66	8798.18
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Number of observations	34 704	34323	34704	34323	29 647	30 643	29 647	30643

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

With the exception of primary education, all other education splines on money-metric in Table 20 were significant. The only difference with Table 16 was that primary education was only statistically different in 2008/09, but the signs of the coefficients are all the same. All education categories on non-money-metric poverty were significant in both tables. In all collated corresponding tables, the signs of coefficients were all similar with the degree education level exhibiting a positive sign. Education year showed a concave relationship in all tables where the poverty likelihood decreased at an increasing rate with more levels of education.

4.4 Other analysis

Incomes sources are disaggregated to determine their significance on poverty reduction and educational attainment. In addition, the empirical analysis evaluates the share of labour income to total income at different educational attainment levels as the connection between education and the labour market has been discussed numerous times. Tables 21 and 22 present the percentage share of each income source to sum income by educational attainment for youth and non-youth, respectively. The wage income proportions of aggregate income were the highest in all education categories for both youth and non-youth. However, the share of wage income in all education categories (omitting no schooling in youth) declined over the years. The wage income share of individuals educated to a degree level declined for the youth (82.4% to 70.8%) and non-youth (71.9% to 65.2%).

The self-employment share was greater among the more educated categories in 2008/09: education categories of Matric and degree levels had the highest proportion in the self-employment income share of all cohorts. Of those in possession of a degree, their proportions in self-employment income were 12.1% (youth) and 17.4% (non-youth). In the same period, those with no schooling had the lowest share that fell substantially by 3.2 percentage point for the non-youth while it rose by less than one percentage point among the youth. The income from rent and royalties had the lowest share of the total income accounting for less than 1% in each education category in the first survey but increased significantly in 2014/2015.

At lower education levels (up to incomplete secondary education), the social grant share was greater. Their sum shares were 41.3% and 39.6% (youth) as well as 52.5% and 38.6% (non-youth) in 2008/09 and 2014/15, respectively. This social grant share decreased over the years and more significantly among the non-youth. In contrast, the 2014/15 showed only 0.4% (youth) and 0.2% (non-youth) of those educated to a degree level were accounted for in the

social grant share. Investment and other sources of income, mostly accounted for in the lower education categories were one of the least contributors to the aggregate income.

Table 21: Percentage share of each income source to total income by educational attainment, youth cohort (%)

	Wage	Self	Rent	Grant	Invest	Other	
LCS 2008/09							
None	77.03	5.47	0.05	11.80	0.86	4.79	100.00
Incomplete primary	62.66	8.65	0.09	20.32	1.28	7.01	100.00
Incomplete secondary	72.93	9.15	0.46	9.17	1.21	7.07	100.00
Matric	76.70	12.88	0.22	3.22	1.14	5.85	100.00
Matric + Cert/Dip	81.63	10.74	0.24	1.91	1.49	3.99	100.00
Degree	82.39	12.06	0.62	0.52	0.84	3.58	100.00
Unspecified	83.90	3.40	0.01	6.62	0.37	5.70	100.00
All	76.53	10.70	0.35	5.50	1.18	5.73	100.00
LCS 2014/15							
None	78.58	6.07	10.15	12.45	0.23	2.53	100.00
Incomplete primary	51.20	10.55	13.10	18.36	2.25	4.54	100.00
Incomplete secondary	59.19	13.39	13.10	8.78	1.48	4.06	100.00
Matric	63.84	14.09	13.57	3.46	1.72	3.31	100.00
Matric + Cert/Dip	72.01	9.42	12.78	1.33	1.75	2.70	100.00
Degree	70.80	9.73	14.41	0.42	1.76	2.87	100.00
Unspecified	50.66	16.54	18.85	10.95	1.43	1.57	100.00
All	63.70	12.60	13.50	5.09	1.64	3.46	100.00

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

To this end, an attempt was made to disaggregate the contributions of income sources to the observed money-metric poverty change. It is possible to identify how much of the overall poverty change is due to any particular income source and the higher the values of these estimates for a source, the higher will be its contribution to poverty reduction. Since the income variable will be adopted (as opposed to the consumption variable until the end of Section 4.3), the FGT indices derived in this sub-section using the income variable are not necessarily expected to be the same to those derived earlier using the consumption variable.

Table 22: Percentage share of each income source to total income by educational attainment, non-youth cohort (%)

	Wage	Self	Rent	Grant	Invest	Other	
LCS 2008/09							
None	57.94	6.80	0.14	27.72	0.79	6.61	100.00
Incomplete primary	63.18	10.77	0.42	18.41	1.71	5.51	100.00
Incomplete secondary	72.09	13.99	0.39	6.36	3.67	4.51	100.00
Matric	72.96	17.98	0.70	1.69	4.51	4.16	100.00
Matric + Cert/Dip	75.59	14.81	0.72	1.17	4.55	3.16	100.00
Degree	71.86	17.45	0.93	0.50	3.74	5.52	100.00
Unspecified	78.37	8.31	0.55	8.11	1.71	3.96	100.00
All	72.96	15.99	0.65	4.06	3.85	4.49	100.00
LCS 2014/15							
None	56.24	3.59	10.78	14.16	13.32	1.90	100.00
Incomplete primary	49.63	16.98	12.48	17.30	1.11	3.49	100.00
Incomplete secondary	59.66	11.40	16.55	7.09	2.40	2.91	100.00
Matric	60.10	15.25	17.10	2.01	3.17	2.36	100.00
Matric + Cert/Dip	68.90	11.45	14.53	0.75	3.98	1.39	100.00
Degree	65.21	12.94	15.92	0.21	4.17	1.55	100.00
Unspecified	48.35	10.40	14.50	22.36	0.87	3.52	100.00
All	62.24	13.04	16.98	3.41	3.18	2.15	100.00

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

The extent of money-metric poverty reduction by income sources is presented in Tables 23 and 24 using the headcount index. The major source of income relative to the sum income was wage income: in each period, wage income constituted a large portion of the total income in all cohorts. Wage income relative contributions to the poverty headcount ratio were the greatest among youth (74.51%) and non-youth (70.14%) cohorts in 2008/09. Despite a drop of more than 13 percentage points in both cohorts, wage income was still a dominant source of total income in 2014/15. In absolute terms, wage income reduced the money-metric poverty by 0.4055 (youth) and 0.4397 (non-youth) in 2014/15.

A substantial proportion of the contribution to total income also emerged from social grants. Income from social grant was the second major contributor to total income accounting for approximately 8% in youth and 10% in non-youth across surveys. Its absolute contribution to poverty reduction increased slightly for both youth (0.0480 to 0.0597) and the non-youth (0.0715 to 0.0780). It was followed by self-employment income in 2008/09 but rent income in 2014/15. The rent income portion of the sum income expanded greatly by 12 percentage

points for youth and 16 percentage points for non-youth. Likewise, its absolute contribution also improved. While investment income was less important in youth and non-youth, the share of other incomes on total income declined.

Table 23: Money-metric poverty headcount ratio decomposition by income source, youth cohort

Income source	LCS 2008/09		LCS 2014/15	
	Absolute contribution	Relative contribution (%)	Absolute contribution	Relative contribution (%)
Wage	-0.4367	74.51	-0.4055	60.55
Self-employment	-0.0460	7.84	-0.0718	10.73
Rent	-0.0026	0.45	-0.0865	12.92
Social grant	-0.0480	8.19	-0.0597	8.91
Investment	-0.0074	1.26	-0.0097	1.45
Other	-0.0454	7.74	-0.0364	5.44
		100.00		100.00

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Table 24: Money-metric poverty headcount ratio decomposition by income source, non-youth cohort

Income source	LCS 2008/09		LCS 2014/15	
	Absolute contribution	Relative contribution (%)	Absolute contribution	Relative contribution (%)
Wage	-0.4816	70.14	-0.4397	56.69
Self-employment	-0.0618	7.17	-0.0865	9.15
Rent	-0.0048	0.71	-0.1315	16.96
Social grant	-0.0715	10.41	-0.1945	20.58
Investment	-0.0214	3.11	-0.0164	2.12
Other	-0.0407	5.93	-0.0277	3.58
		100.00		100.00

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

The estimated factor contributions of each income source to money-metric poverty reduction in aggregate income based on poverty gap ratio and squared poverty gap ratio are illustrated in Tables A4-A7 in the Appendix. Once again, wage income was the leading income source but relative contributions of wage income to money-metric poverty gap and squared poverty gap ratios are lower compared to the headcount ratio contributions. The relative contributions

of social grant to poverty gap and squared poverty gap ratios were higher than in the headcount ratio. In addition, the absolute contributions were higher.

Table 25 and 26 present the youth money-metric poverty headcount ratio decomposition by income source in each educational attainment category. As a leading source of income, the wage income contribution to total income was higher for youth with at least Matric than the preceding lower levels of educational attainment. Therefore, wage income contribution towards money-metric poverty reduction increased along with higher levels of schooling. In 2008/09, the wage income contribution by youth with incomplete primary education was 67.62% compared to 78.03% of those in possession of Matric.

Table 25: Money-metric poverty headcount ratio decomposition by income source in each educational attainment category, youth cohort 2008/09

Income source	None		Incomplete primary		Incomplete secondary	
	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.2443	59.91	-0.2531	67.62	-0.2443	59.91
Self-employment	-0.0407	9.98	-0.0258	6.90	-0.0407	9.98
Rent	0.0000	0.00	-0.0004	0.10	0.0000	0.00
Social grant	-0.0802	19.66	-0.0664	17.73	-0.0802	19.66
Investment	-0.0085	2.09	-0.0031	0.82	-0.0085	2.09
Other	-0.0341	8.36	-0.0255	6.83	-0.0341	8.36
		100.00		100.00		100.00
Income source	Matric		Matric + Cert. / Dip.		Degree	
	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.5691	78.03	-0.6632	79.44	-0.7225	76.79
Self-employment	-0.0600	8.23	-0.0673	8.07	-0.0975	10.37
Rent	-0.0017	0.23	-0.0040	0.47	-0.0136	1.45
Social grant	-0.0355	4.87	-0.0310	3.70	-0.0156	1.66
Investment	-0.0099	1.35	-0.0116	1.39	-0.0133	1.41
Other	-0.0531	7.29	-0.0579	6.93	-0.0783	8.32
		100.00		100.00		100.00

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

Table 26: Money-metric poverty headcount ratio decomposition by income source in each educational attainment category, youth cohort 2014/15

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3620	49.75	-0.2472	56.70	-0.3551	59.37
Self-employment	-0.1146	15.75	-0.0510	11.71	-0.0636	10.63
Rent	-0.1378	18.93	-0.0453	10.40	-0.0714	11.93
Social grant	-0.0640	8.79	-0.0699	16.02	-0.0672	11.23
Investment	0.0000	0.0000	-0.0061	1.39	-0.0079	1.32
Other	-0.0492	6.78	-0.0065	3.78	-0.0330	5.52
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.4904	62.62	-0.5759	65.36	-0.5658	59.58
Self-employment	-0.0886	11.32	-0.0801	9.09	-0.0919	9.67
Rent	-0.1002	12.80	-0.1222	13.87	-0.2063	21.72
Social grant	-0.0496	6.34	-0.0281	3.19	-0.0157	1.65
Investment	-0.0107	1.37	-0.0176	2.00	-0.0245	2.58
Other	-0.0434	5.55	-0.0571	6.49	-0.0456	4.80
		100.00		100.00		100.00

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

The share of wage income in the sum income declined in all categories of educational attainment by no less than 10 percentage points (excluding incomplete secondary). Consequently, the absolute contribution to headcount poverty reduction also declined. For example, the absolute contribution of those educated up to a degree level dropped from 0.7225 to 0.5658. Despite a fall of 10 percentage points in the wage income portion among those with no schooling, its absolute contribute increased (0.2443 to 0.3620).

Income from social grant was among the most crucial income components with a reducing effect on money-metric poverty. Social grants target households living below the poverty line to mitigate poverty and are mostly received by those with low levels of schooling (up to incomplete secondary). Of those with incomplete primary education, 17.73% of the relative contribution was from the social grant while matriculants accounted for 4.87% in 2008/09. Social grant contributions for those with lower levels of education dropped in 2014/15.

Rent income share in total income expanded swifly in all education categories from less than 2% in 2008/09 to a minimum of 10% in 2014/15. Rent income had a reducing effect on

money-metric poverty as the absolute contribution for matriculants, for example, rose from 0.0017 to 0.1002. Self-employment income was higher among those with low levels of education in 2014/15 compared to those with a minimum of Matric. In all surveys, investment and other incomes were among the lowest contributors to total income irrespective of any level of schooling.

Tables 27 and 28 show the results in the non-youth cohort. The components that account for a larger share of sum income have a crucial role in alleviating money-metric poverty. The consequential part played by wage income in determining poverty was portrayed in the portion of this income source in aggregate income. Wage income had the greatest absolute effect on poverty and contributed largely to the total income by at least 50% at all education categories. Social grant was second most important income source to poverty reduction for the lower educated categories, but self-employment income was rather ranked second at more educated categories. These findings are highly related to those of the youth cohort previously discussed. The poverty headcount ratio results are also not different from the ones presented in Table A8-15 in the Appendix, derived from poverty gap and squared poverty gap ratios.

Table 27: Money-metric poverty headcount ratio decomposition by income source in each educational attainment category, non-youth cohort 2008/09

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.2361	54.84	-0.3264	64.43	-0.4915	71.87
Self-employment	-0.0268	6.23	-0.0361	7.12	-0.0610	8.92
Rent	-0.0008	0.18	-0.0017	0.33	-0.0029	0.42
Social grant	-0.1314	30.53	-0.1093	21.57	-0.0710	10.38
Investment	-0.0033	0.77	-0.0060	1.19	-0.0181	2.65
Other	-0.0321	7.45	-0.0271	5.36	-0.0393	5.75
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.6271	73.74	-0.6756	73.27	-0.6505	69.23
Self-employment	-0.0992	11.66	-0.1083	11.74	-0.1281	13.63
Rent	-0.0076	0.89	-0.0110	1.19	-0.0181	1.93
Social grant	-0.0379	4.46	-0.0240	2.60	-0.0155	1.65
Investment	-0.0316	3.71	-0.0465	5.05	-0.058	6.19
Other	-0.0471	5.54	-0.0567	6.15	-0.0693	7.37
		100.00		100.00		100.00

Source: Own calculation based on the LCS of 2008/09.

Table 28: Money-metric poverty headcount ratio decomposition by income source in each educational attainment category, non-youth cohort 2014/15

Income source	None		Incomplete primary		Incomplete secondary	
	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3713	60.60	-0.3118	51.77	-0.4418	59.27
Self-employment	-0.0252	4.11	-0.0610	10.13	-0.0741	9.95
Rent	-0.0823	13.43	-0.0646	10.73	-0.1009	13.53
Social grant	-0.0980	15.99	-0.1341	22.27	-0.0891	11.95
Investment	-0.0230	3.75	-0.0072	1.20	-0.0104	1.39
Other	-0.0130	2.12	-0.0235	3.90	-0.0291	3.91
		100.00		100.00		100.00
Income source	Matric		Matric + Cert. / Dip.		Degree	
	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.5250	58.97	-0.5434	57.08	-0.5064	51.47
Self-employment	-0.1063	11.94	-0.1031	10.83	-0.1053	10.70
Rent	-0.1664	18.69	-0.2253	23.66	-0.2820	28.66
Social grant	-0.0432	4.86	-0.0220	2.31	-0.0103	1.05
Investment	-0.0206	2.32	-0.0327	3.44	-0.0450	4.57
Other	-0.0287	3.23	-0.0255	2.68	-0.0350	3.55
		100.00		100.00		100.00

Source: Own calculation based on the LCS of 2014/15.

4.5 Conclusion

This chapter presented the analyses of results using the LCS of 2008/09 and 2014/15 data sets. The descriptive statistics were adopted to evaluate the impact of educational attainment on both money-metric and non-money-metric poverty using the three FGT indices and factor analysis approach. The study also examined the likelihood of poverty using the probit regression and bivariate probit models with findings highlighting the following groups as more likely to be poor: youth aged 15-34 years, Africans, females, rural areas, those with no education and households with a child aged 0-14 years. Province variable produced mixed results showing Limpopo and Free State as more likely to be money-metric poor while Eastern Cape and KwaZulu-Natal were more likely to be non-money-metric poor. Lastly, the chapter analysed the contribution of various income sources to money-metric poverty reduction with wage income having the highest reducing effect. The study found that at continued higher education levels, the relative contribution of social grant to money-metric poverty declined.

CHAPTER FIVE: CONCLUSION

5.1 Introduction

The main research objective of the study was to determine the impact of educational attainment levels on youth poverty. The complex nature of poverty was approached using the FGT indices for money-metric poverty and the FA-derived welfare index for non-money-metric poverty. Furthermore, income sources were disaggregated to determine their magnitude and extent in mitigating poverty. This chapter presents a summary of research findings generated in previous chapters with Section 5.2 providing a review of the main findings while Section 5.3 concludes with policy recommendations to the relevant authorities.

5.2 Review of main findings

The descriptive statistics results demonstrated that poverty was more prevalent among the youth than the non-youth despite a more significant contraction in youth poverty. Youth were more likely to be money-metric and non-money-metric poor than the non-youth at almost all levels of educational attainment. Based on the results, poor individuals were mainly distinguished by the following characteristics: African, female, lived in rural areas, educated without Matric and lived in households with more than five members. A large number of both money-metric and non-money-metric poor individuals were mainly found in KwaZulu-Natal and Eastern Cape. Furthermore, the findings indicated that youth were more educated than non-youth at lower levels of education, whereas the non-youth dominated the post-Matric education categories. Hence poverty was more prevalent among those with low education. The results strongly support the notion that those with higher levels of schooling tend to be associated with lower poverty.

The study adopted the probit model to analyse money-metric and non-money metric poverty with interest on the marginal effects. Youth aged between 15-24 years were significantly more likely to be poor than those aged between 25-34 years. Africans were at a disadvantage as they had significantly higher money-metric and non-money-metric poverty likelihood than all other population groups. Concerning educational attainment, the absolute terms of the marginal effects became greater across two survey years as higher educational attainment levels had a stronger impact on money-metric poverty reduction in 2014/2015. Overall, higher educational attainment of the youth led to a significantly greater reduction in both money-metric and non-money-metric poverty. Similar findings were also derived from the bivariate probit regressions.

Lastly, in examining the contribution of various income sources to money-metric poverty reduction, wage income had the highest reducing effect. In addition, the relative contribution of wage income to aggregate income increased with higher education. The relative contribution of social grant to money-metric poverty was more prevalent among those with low education and declined with an increase in schooling level. Moreover, a sizeable contribution of income from self-employment was widespread at continued higher education levels and overall, predominant among the youth cohort. Thus, for the youth cohort, higher educational attainment implied better labour market outcome (wage and self-employment), leading to money-metric poverty reduction.

5.3 Policy recommendations

From the findings of the study, one of the endeavours towards mitigating poverty should concentrate on improving quantity (and quality) of education. South Africa allocates a sizeable portion of the government expenditure towards education (Botha, 2010), but budget does not appear to complement the observed learning outcomes (Chisholm & Wildeman, 2013). Despite a massive shift in resources, particularly to disadvantaged schools, the government has been least prosperous in enhancing the quality of education. Disadvantaged schools are subjected to inadequate learning environments and unequal education distribution. Moreover, schools suffer from infrastructure backlogs and a shortage of learning materials, which immensely affect the functionality of schooling activity (Murtin, 2013).

In addition, South African primary education has been under scrutiny for achieving low results in international tests set to determine learners' cognitive skills. The TIMSS (Trends in Mathematics and Science Study), PIRLS (Progress in International Reading and Literacy Study) and SACMEQ (Southern and Eastern Africa Consortium for Monetary Educational Quality) demonstrate that South African learners perform well below their academic potential (Carnoy *et al.*, 2012). The results raise questions about the quality of South Africa's education that learners are subjected to, predominantly those in disadvantaged schools (Spaull, 2013a).

In 2011, the government introduced the Annual National Assessments (ANA) to evaluate students' performance across the assessed grades. Moreover, ANA examines the level and quality of basic education to make certain that every learner experiences high quality basic education, notwithstanding the school they attend (Kanjee & Moloji, 2014). Results from the

assessments are useful in evaluating the learning disparities among students in different quintile schools and school systems (Van der Berg, 2015). Regrettably, ANA is handled and graded locally by schools, subjecting the system to several forms of manipulations and lenient marking, consequently disparaging the efficacy of the ANA results (Van der Berg *et al.*, 2011). Thus, the assessment should be externally administered and examined to serve as a reliable and trustworthy measure of education quality for all primary schools, providing a clear illustration of the system's conditions and aid authorities in establishing targeted interventions (National Planning Commission, 2013).

A considerable portion of learners in disadvantaged schools accumulate weaker cognitive skills related to numeracy, reading and writing. Policy interventions are needed at early stages of education as the high levels between school inequalities are much persistent before secondary school level (Van der Berg, 2008). In addition, it is strenuous to remediate the large learning deficits already accumulated by learners (Spaull & Kotze, 2015). Thus, solid investments in the foundation phase are likely to result in more sustained improvements in education.

Moreover, the quality of education is further impacted by the inadequate content knowledge and pedagogical skills of some educators. In that respect, the government should implement a nationwide system of diagnostic teacher testing and training (Spaull, 2013b). Educators require updated knowledge and skills to perform assessment-related aspects of their work competently and professionally (Brookhart, 2011). Educators who do not possess satisfactory levels of content knowledge should be required to enter compulsory training within a specified time-frame. Teacher training and development programmes should enhance teachers' subject knowledge and educate on effective teaching methods.

Other sources of inferior quality education include ineffective management of the education system on various levels of management (Pretorius, 2014). Several policies are either negligently executed or never executed at all owing to the incompetence and absence of managerial and administrative capacity at all levels. The government should increase national and provincial bureaucracies' managerial, administrative and technical capacity of the (Spaull, 2013b). Boosting the administrative systems and managerial efficiency of government should have substantial spill-over impacts on all areas of operation.

The results indicate that educational attainment levels for both youth and non-youth improved; however, the young population still have not fared well in the labour market. One noteworthy contributor to this occurrence is the mismatch between skills and labour market demands, resulting in youth unemployment predicament. Skills mismatch refers to numerous forms of imbalances between skills offered and skills demanded in the labour market (Reddy *et al.*, 2016). Often graduates have adequate levels of education, but not in the fields organisations are searching in and many graduates find themselves without employment or compelled to accept non-graduate jobs. The imbalance between supply of and demand for labour debilitates the pertinence of labour leading to the inefficient use of the country's human capital.

In addition, low levels of entrepreneurship aggravate this condition as well as the reluctance of young people to enrol in vocational education to acquire skills that are necessary for commonly accessible low- to mid-skilled jobs (Awogbenle & Iwuamadi, 2010). On the other hand, the South African higher education system fails to comply with the job market requirements. Higher educational institutions should provide a learning environment and skills that complement the constantly changing demands of the labour market. Additionally, a dual system connecting education and training should be effectuated to abate youth unemployment by enhancing school-to-work transition (OECD, 2006).

A large fraction of job seekers are Africans who dwell far from potential employers due to spatial inequality, thus incurring huge job searching related costs such as transport costs. Traveling long distances to and from the cities could offset the possible benefit of looking for employment, particularly in an economic climate with tentative labour market possibilities, resulting in a rise in discouraged job seekers. Another challenge related to youth unemployment is that the mechanics of the labour market are lagging, where the supply of and demand for information are segregated and frequently inaccessible to rural residents who do not have networks and skills to connect with job opportunities in urban areas. To mitigate unemployment, the government should subsidise the costs involved in the job searching process such as a job-seeking transport subsidy. Bhorat (2012) suggests that the job-seeking transport subsidy could be administered by the centres of the Department of Labour where the unemployed can access information related to job opportunities and thus, make the employment searching process less strenuous.

Last but not least, considering a sizeable fraction of lowly educated youth in the labour market that are unlikely to secure decent paying employment in the formal sector, the government should strive to promote youth entrepreneurship by encouraging young people to survive with their own businesses. The unemployed youth in rural areas may gain from youth entrepreneurship related programmes mainly through reforms in the agricultural sector, shifting off from subsistence farming and towards commercial use (Coenjaerts *et al.*, 2009).



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APPENDIX

Table 29: Creation of dummy variables for the non-income welfare index

Variable	Category	LCS 2008/09	LCS 2014/15
Fuel source for cooking	Electricity	- Electricity from mains - Electricity from generator - Solar energy	- Electricity from mains - Electricity from generator - Solar energy
	Gas	- Gas	- Gas
	Paraffin/Coal	- Paraffin - Coal	- Paraffin - Coal
	Other	- Wood - Animal dung - Other - None - Unspecified	- Wood - Animal dung - Other - None - Unspecified
Fuel source for lighting	Electricity	- Electricity from mains - Electricity from generator - Solar energy	- Electricity from mains - Electricity from generator - Solar energy
	Paraffin	- Paraffin	- Paraffin
	Candles or other	- Gas - Wood - Coal - Candles - Animal dung - Other - None - Unspecified	- Gas - Wood - Coal - Candles - Animal dung - Other - None - Unspecified
Dwelling	Formal	- Dwelling on a separate stand or yard - Flat or apartment in a block of flats - Town-, cluster- or semi-detached house - Unit in a retirement village - Dwelling, flat or room in backyard - Room, flatlet - Workers' hostel - Family unit	- Formal dwelling/ House or brick/concrete block - Flat or apartment in a block of flats - Cluster house in security complex - Town house (semi-detached house in a complex) - Semi-detached house - Formal dwelling /House/ Flat/Room in backyard - Room/Apartment on a property
	Traditional	Traditional dwelling	- Traditional dwelling/Hut/Structure made of
	Informal	- Informal dwelling in backyard - Informal dwelling not in backyard - Caravan/Tent - Other - Unspecified	- Informal dwelling in backyard - Informal dwelling not in backyard - Caravan/Tent - Other - Unspecified

Table A1: Continued

Variable	Category	LCS 2008/09	LCS 2014/15
Roof material of dwelling	Asbestos	- Asbestos	- Asbestos
	Bricks	- Bricks - Cement/concrete	- Bricks - Cement/concrete
	Corrugated	- Corrugated iron/zinc	- Corrugated iron/zinc
	Thatching	- Thatch/grass	- Thatch/grass
	Tile	- Tiles	- Tiles
	Inferior quality	- Wood - Plastic - Cardboard - Mixture of mud and cement - Wattle and daub (e.g. sticks and mud) - Mud - Other - Unspecified	- Wood - Plastic - Cardboard - Mixture of mud and cement - Wattle and daub (e.g. sticks and mud) - Mud - Other - Unspecified
Wall material of dwelling	High quality	- Bricks - Cement/concrete	- Bricks - Cement/concrete
	Medium quality	- Mixture of mud and cement - Wattle and daub (e.g. sticks and mud) - Mud	- Mixture of mud and cement - Wattle and daub (e.g. sticks and mud) - Mud
	Low quality	- Corrugated iron/zinc - Wood - Plastic - Cardboard - Tiles - Thatch/grass - Asbestos - Other - Unspecified	- Corrugated iron/zinc - Wood - Plastic - Cardboard - Tiles - Thatch/grass - Asbestos - Other - Unspecified
Water source	Piped water	- Piped (tap) water in dwelling - Piped (tap) water on site or in yard	- Piped (tap) water in dwelling/house - Piped (tap) water in yard
	Public tap	- Neighbour's tap - Public tap	- Neighbour's tap - Public/communal tap
	Borehole	- Borehole on-site - Borehole off-site	- Borehole in yard - Borehole outside yard
	Other	- Rain-water tank in yard - Water-carrier/tanker - Flowing water/stream/river - Stagnant water/dam/pool - Well - Spring - Other - Unspecified	- Rain-water tank in yard - Water-carrier/tanker - Flowing water/stream/river - Stagnant water/dam/pool - Well - Spring - Other - Unspecified

Table A1: Continued

Variable	Category	LCS 2008/09	LCS 2014/15
Sanitation	Flush or chemical	<ul style="list-style-type: none"> - Flush toilet with off-site disposal - Flush toilet with off-site disposal - Flush toilet with off-site disposal - Flush toilet with on-site disposal - Flush toilet with on-site disposal - Chemical toilet on-site - Chemical toilet off-site 	<ul style="list-style-type: none"> - Flush toilet connected to a public sewerage system - Flush toilet connected to a septic tank - Chemical toilet - Ecological sanitation system
	Pit with ventilation	<ul style="list-style-type: none"> - Pit latrine with ventilation pipe on-site - Pit latrine with ventilation pipe off-site 	<ul style="list-style-type: none"> - Pit latrine/toilet with ventilation pipe
	Pit without ventilation	<ul style="list-style-type: none"> - Pit latrine without ventilation pipe on-site - Pit latrine without ventilation pipe off-site 	<ul style="list-style-type: none"> - Pit latrine/toilet without ventilation pipe
	Bucket	<ul style="list-style-type: none"> - Bucket toilet on-site - Bucket toilet off-site 	<ul style="list-style-type: none"> - Bucket toilet (collected by municipality) - Bucket toilet (emptied by household)
	None	<ul style="list-style-type: none"> - None - Unspecified 	<ul style="list-style-type: none"> - None - Other - Unspecified
Refuse removal frequency	Often	<ul style="list-style-type: none"> - Removed by local authority at least once a week - Removed by community members at least once a week 	<ul style="list-style-type: none"> - Removed by local authority/private company at least once a week - Removed by community members, contracted by municipality, at least once a week - Removed by community members at least once a week
	Sometimes	<ul style="list-style-type: none"> - Removed by local authority less often than once a week - Removed by community members less often than once a week 	<ul style="list-style-type: none"> - Removed by local authority/private company less often - Removed by community members, contracted by municipality, less often - Removed by community members less often
	Communal	<ul style="list-style-type: none"> - Communal refuse dump / containers 	<ul style="list-style-type: none"> - Communal refuse dump - Communal container/central collection point
	Own	<ul style="list-style-type: none"> - Own refuse dump 	<ul style="list-style-type: none"> - Own refuse dump
	None/Other	<ul style="list-style-type: none"> - No rubbish removal - Other - Unspecified 	<ul style="list-style-type: none"> - No rubbish removal - Other - Unspecified

Source: Based on the LCS of 2008/09 and 2014/15.

Table 30: Variables by main income source in each LCS

Income source	LCS 2008/09	LCS 2014/15
[1]: Wages	Household salaries and wages	Household salaries and wages
[2]: Self-Employed	Household self-employment and business	Household self-employment and business
[3]: Rent and royalties	Income from subsistence farming Income from letting of fixed property Royalties Imputed rent on owned dwelling 7% per year of Dwelling	Income from subsistence farming Income from letting of fixed property Royalties Imputed rent on owned dwelling 7% per year of Dwelling
[4]: Social grants	Old age pensions Disability grants Family and other allowances	Old age pensions Disability grants Child support grant Care dependency grant Foster care grant Grant-in-aid Other assistance from government
[5]: Investment income	Dividends of Listed Companies Dividends of Unlisted Companies Interest received Annuities from own investment Pension from previous employment	Dividends of Listed Companies Dividends of Unlisted Companies Unit trusts Income from share trading Interest received Annuities from own investment Pension from previous employment

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Table A2: Continued

Income source	LCS 2008/09	LCS 2014/15
[6]: Other	Workmen's compensation Funds Alimony, palimony and other allowances Other Income from Individuals Hobbies Side lines and part time activities Sale of vehicles, property etc Payments received from boarders and other non-members Claims Stokvel Benefits, donations and gifts Cash Value of food received Value Of Clothing Value of other benefits, donations, gifts etc Lobola or dowry received Income from gambling Tax Refunds received Income not elsewhere specified Gratuities and other lump sum payments	From other funds Alimony, palimony and other allowances Other Income from Individuals Hobbies Side lines and part time activities Income from sale of vehicles Income from sale of house Payments received from boarders and other non-members Claims Stokvel Benefits, donations and gifts Cash Value of food received Value Of Clothing Value of other benefits, donations, gifts etc Lobola or dowry received Income from gambling Tax Refunds received Income not elsewhere specified Gratuities and other lump sum payments



Table 31: Derivation of education years spline variables

Years of education	Education spline variables				
	Primary	Secondary	Matric	Cert/Dip	Degree
0	0	0	0	0	0
1	1	0	0	0	0
2	2	0	0	0	0
3	3	0	0	0	0
4	4	0	0	0	0
5	5	0	0	0	0
6	6	0	0	0	0
7	6	1	0	0	0
8	6	2	0	0	0
9	6	3	0	0	0
10	6	4	0	0	0
11	6	5	0	0	0
12	6	5	1	0	0
13	6	5	1	1	0
15	6	5	1	1	2
16	6	5	1	1	3
17	6	5	1	1	4

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Table 32: Money-metric poverty gap ratio decomposition by income source, youth cohort

Income source	LCS 2008/09		LCS 2014/15	
	Absolute contribution	Relative contribution (%)	Absolute contribution	Relative contribution (%)
Wage	-0.4758	60.30	-0.3978	46.59
Self-employment	-0.0580	7.35	-0.0786	9.21
Rent	-0.0036	0.45	-0.1328	15.55
Social grant	-0.1552	19.67	-0.1715	20.09
Investment	-0.0099	1.25	-0.0105	1.23
Other	-0.0866	10.98	-0.0626	7.33
		100.00		100.00

Source: Own calculations based on the LCS of 2008/09 and 2014/15.

Table 33: Money-metric poverty gap ratio decomposition by income source, non-youth cohort

Income source	LCS 2008/09		LCS 2014/15	
	Absolute contribution	Relative contribution (%)	Absolute contribution	Relative contribution (%)
Wage	-0.5059	60.14	-0.417	46.13
Self-employment	-0.0772	9.18	-0.0862	9.53
Rent	-0.0061	0.73	-0.1771	19.58
Social grant	-0.1577	18.74	-0.1623	17.94
Investment	-0.0231	2.74	-0.0171	1.89
Other	-0.0713	8.47	-0.0446	4.93
		100.00		100.00

Source: Own calculations based on the LCS of 2008/09 and 2014/15.

Table 34: Money-metric squared poverty gap ratio decomposition by income source, youth cohort

Income source	LCS 2008/09		LCS 2014/15	
	Absolute contribution	Relative contribution (%)	Absolute contribution	Relative contribution (%)
Wage	-0.4785	55.48	-0.3825	41.78
Self-employment	-0.0460	7.17	-0.0797	8.71
Rent	-0.0040	0.46	-0.1541	16.83
Social grant	-0.2030	23.53	-0.2165	23.65
Investment	-0.0107	1.25	-0.0106	1.16
Other	-0.1045	12.11	-0.0721	7.87
		100.00		100.00

Source: Own calculations based on the LCS of 2008/09 and 2014/15.

Table 35: Money-metric squared poverty gap ratio decomposition by income source, non-youth cohort

Income source	LCS 2008/09		LCS 2014/15	
	Absolute contribution	Relative contribution (%)	Absolute contribution	Relative contribution (%)
Wage	-0.5043	56.40	-0.3986	42.17
Self-employment	-0.0805	9.01	-0.0865	9.15
Rent	-0.0066	0.73	-0.1972	20.86
Social grant	-0.1938	21.68	-0.1945	20.58
Investment	-0.02379	2.66	-0.0172	1.82
Other	-0.0852	9.52	-0.0513	5.42
		100.00		100.00

Source: Own calculations based on the LCS of 2008/09 and 2014/15.

Table 36: Money-metric poverty gap ratio decomposition by income source in each educational attainment category, youth cohort 2008/09

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3211	46.56	-0.3348	49.54	-0.4348	57.12
Self-employment	-0.0543	7.87	-0.0416	6.16	-0.0535	7.04
Rent	-0.0012	0.17	-0.0010	0.14	-0.0037	0.49
Social grant	-0.2437	35.34	-0.2263	33.49	-0.1726	22.67
Investment	-0.0099	1.43	-0.0038	0.57	-0.0085	1.12
Other	-0.0595	8.63	-0.0683	10.10	-0.0880	11.56
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.5758	66.97	-0.6464	71.17	-0.6793	71.18
Self-employment	-0.0682	7.93	-0.0736	8.11	-0.0981	10.27
Rent	-0.0028	0.32	-0.0054	0.60	-0.0135	1.41
Social grant	-0.1116	12.98	-0.0790	8.69	-0.0312	3.27
Investment	-0.0127	1.48	-0.0158	1.74	-0.0230	2.41
Other	-0.088	10.32	-0.0880	9.69	-0.1093	11.46
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2008/09.

Table 37: Money-metric poverty gap ratio decomposition by income source in each educational attainment category, youth cohort 2014/15

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3375	38.94	-0.2926	39.60	-0.3593	43.70
Self-employment	-0.1155	13.32	-0.0655	8.86	-0.0717	8.73
Rent	-0.1648	19.01	-0.0773	10.45	-0.1209	14.71
Social grant	-0.1808	20.86	-0.2539	34.35	-0.1999	24.31
Investment	-0.0109	1.25	-0.0066	0.90	-0.0086	1.05
Other	-0.0574	6.62	0.0431	5.84	-0.0617	7.50
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.4601	50.79	-0.5297	55.69	-0.5262	53.92
Self-employment	-0.0912	10.07	-0.0859	9.03	-0.0913	9.35
Rent	-0.1486	16.40	-0.1603	16.86	-0.2256	23.12
Social grant	-0.1281	14.15	0.0754	7.93	-0.0391	4.00
Investment	-0.0114	1.26	-0.0190	2.00	-0.0275	2.82
Other	-0.0664	7.33	-0.0807	8.49	-0.0663	6.79
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2014/15.

Table 38: Money-metric poverty gap ratio decomposition by income source in each educational attainment category, non-youth cohort 2008/09

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3104	42.69	-0.3939	51.85	-0.5228	61.89
Self-employment	-0.0426	5.86	-0.0516	6.80	-0.0738	8.74
Rent	-0.0012	0.17	-0.0030	0.39	-0.0042	0.50
Social grant	-0.2998	41.23	-0.2410	31.72	-0.1556	18.42
Investment	-0.0057	0.78	-0.0077	1.01	-0.0197	2.32
Other	-0.0674	9.27	-0.0625	8.23	-0.0687	8.13
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.6048	66.69	-0.6413	68.01	-0.6113	64.37
Self-employment	-0.1017	11.22	-0.1107	11.74	-0.1318	13.87
Rent	-0.0084	0.93	-0.0138	1.46	-0.0191	2.01
Social grant	-0.0813	8.96	-0.0491	5.21	-0.0311	3.27
Investment	-0.0334	3.68	-0.0483	5.12	-0.0600	6.32
Other	-0.0772	8.52	-0.0800	8.46	-0.0964	10.16
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2008/09.

Table 39: Money-metric poverty gap ratio decomposition by income source in each educational attainment category, non-youth cohort 2014/15

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3927	47.39	-0.3276	39.63	-0.4226	47.34
Self-employment	-0.0547	6.60	-0.0687	8.31	-0.0803	9.00
Rent	-0.1040	12.54	-0.1113	13.47	-0.1524	17.07
Social grant	-0.2295	27.70	-0.2680	32.41	-0.1801	20.18
Investment	-0.0193	2.33	-0.0076	0.91	-0.0110	1.24
Other	-0.0285	3.44	-0.0435	5.27	0.0462	5.17
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.4724	49.35	-0.4928	50.13	-0.4676	47.06
Self-employment	-0.1044	10.90	-0.1051	10.69	-0.1021	10.28
Rent	-0.2150	22.46	-0.2590	26.34	-0.3055	30.75
Social grant	-0.0998	10.43	-0.0538	5.48	-0.0231	2.33
Investment	-0.0212	2.22	-0.0331	3.37	-0.0465	4.68
Other	-0.0444	4.64	-0.0392	3.99	-0.0487	4.90
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2014/15.

Table 40: Money-metric squared poverty gap ratio decomposition by income source in each educational attainment category, youth cohort 2008/09

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3441	43.04	-0.3566	45.05	-0.4413	52.13
Self-employment	-0.0600	7.51	-0.0475	6.01	-0.0580	6.85
Rent	-0.0014	0.18	-0.0014	0.17	-0.0041	0.49
Social grant	-0.3103	38.81	-0.2944	37.19	-0.2262	26.73
Investment	-0.0101	1.26	-0.0044	0.55	-0.0092	1.09
Other	-0.0736	9.20	-0.0874	11.03	-0.1075	12.71
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.5677	62.68	-0.6308	67.58	-0.6597	68.86
Self-employment	-0.0704	7.78	-0.0757	8.11	-0.0974	10.17
Rent	-0.0032	0.35	-0.0058	0.62	-0.0136	1.43
Social grant	-0.1472	16.25	-0.1020	10.93	-0.0374	3.90
Investment	-0.0137	1.51	-0.0172	1.85	-0.0259	2.71
Other	-0.1035	11.43	-0.1018	10.91	-0.1239	12.93
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2008/09.

Table 41: Money-metric squared poverty gap ratio decomposition by income source in each educational attainment category, youth cohort 2014/15

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3247	35.19	-0.2951	34.96	-0.3472	38.65
Self-employment	-0.1129	12.23	-0.0694	8.23	-0.0733	8.16
Rent	-0.1844	19.99	-0.0962	11.40	-0.1440	16.03
Social grant	-0.2219	24.05	-0.3234	38.30	-0.2533	28.20
Investment	-0.0172	1.86	-0.0063	0.74	-0.0087	0.97
Other	-0.0616	6.68	-0.0538	6.37	-0.0718	7.99
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.4370	46.26	-0.5048	51.93	-0.5084	51.57
Self-employment	-0.0908	9.62	-0.0865	8.90	-0.0905	9.18
Rent	-0.1695	17.95	-0.1762	18.13	-0.2344	23.77
Social grant	-0.1610	17.04	-0.0958	9.86	-0.0495	5.02
Investment	-0.0115	1.22	-0.0195	2.01	-0.0279	2.83
Other	-0.0747	7.91	-0.0892	9.17	-0.0753	7.63
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2014/15.

Table 42: Money-metric squared poverty gap ratio decomposition by income source in each educational attainment category, non-youth cohort 2008/09

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	0.3264	39.28	-0.4067	47.93	-0.5212	58.02
Self-employment	-0.0486	5.85	-0.0572	6.75	-0.0777	8.65
Rent	-0.0014	0.17	-0.0035	0.41	-0.0047	0.52
Social grant	-0.3642	43.83	-0.2951	34.79	-0.1926	21.43
Investment	-0.0066	0.79	-0.0083	0.97	-0.0202	2.25
Other	-0.0837	10.08	-0.0776	9.15	-0.0820	9.13
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.5886	63.59	-0.6234	65.63	-0.5943	62.40
Self-employment	-0.1022	11.04	-0.1109	11.67	-0.1313	13.79
Rent	-0.0087	0.94	-0.0144	1.52	-0.0197	2.06
Social grant	-0.1006	10.87	-0.0602	6.34	-0.0376	3.95
Investment	-0.0344	3.72	-0.0489	5.15	-0.0611	6.42
Other	-0.0910	9.84	-0.0921	9.69	-0.1084	11.38
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2008/09.

Table 43: Money-metric squared poverty gap ratio decomposition by income source in each educational attainment category, non-youth cohort 2014/15

	None		Incomplete primary		Incomplete secondary	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.3842	43.19	-0.3208	35.56	-0.4016	42.78
Self-employment	-0.0634	7.12	-0.0701	7.77	-0.0811	8.64
Rent	-0.1144	12.86	-0.1368	15.17	-0.1759	18.74
Social grant	-0.2760	31.03	-0.3155	34.98	-0.2162	23.03
Investment	-0.0181	2.03	-0.0074	0.82	-0.0112	1.20
Other	-0.0335	3.77	-0.0513	5.69	-0.0526	5.61
		100.00		100.00		100.00
	Matric		Matric + Cert. / Dip.		Degree	
Income source	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Wage	-0.4455	45.62	-0.4706	47.51	-0.4523	45.41
Self-employment	-0.1030	10.55	-0.1047	10.57	-0.1007	10.11
Rent	-0.2323	23.79	-0.2703	27.29	-0.3125	31.38
Social grant	-0.1237	12.67	-0.0658	6.64	-0.0280	2.82
Investment	-0.0214	2.19	-0.0328	3.31	-0.0475	4.77
Other	-0.0506	5.18	-0.0464	4.68	-0.0549	5.51
		100.00		100.00		100.00

Source: Own calculations based on the LCS of 2014/15.

Table 44: Probit regressions on money-metric poverty likelihood by including the over-Matric spline variable (marginal effects), all

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.1055*** (0.0062)	0.1133*** (0.0062)	0.0713*** (0.0062)	0.0759*** (0.0062)
Age cohort: 25-34 years	0.0908*** (0.0070)	0.0971*** (0.0070)	0.0593*** (0.0066)	0.0634*** (0.0066)
Province: Eastern Cape	0.0574*** (0.0124)	0.0578*** (0.0126)	0.0892*** (0.0128)	0.0888*** (0.0129)
Province: Northern Cape	0.1308*** (0.0144)	0.1319*** (0.0145)	0.0704*** (0.0133)	0.0701*** (0.0134)
Province: Free State	0.1502*** (0.0145)	0.1516*** (0.0146)	0.0572*** (0.0134)	0.0564*** (0.0135)
Province: KwaZulu-Natal	0.0236** (0.0118)	0.0253** (0.0120)	0.0468*** (0.0119)	0.0479*** (0.0120)
Province: North West	0.0131 (0.0127)	0.0134 (0.0129)	0.0303** (0.0128)	0.0303** (0.0130)
Province: Gauteng	-0.0241** (0.0115)	-0.0224* (0.0117)	-0.0366*** (0.0110)	-0.0368*** (0.0110)
Province: Mpumalanga	0.0289** (0.0126)	0.0307** (0.0128)	-0.0018 (0.0120)	-0.0014 (0.0121)
Province: Limpopo	0.1541*** (0.0147)	0.1555*** (0.0148)	0.0546*** (0.0130)	0.0544*** (0.0131)
Area type: Urban	-0.1328*** (0.0060)	-0.1345*** (0.0060)	-0.1479*** (0.0062)	-0.1492*** (0.0063)
Gender: Male	-0.0207*** (0.0047)	-0.0222*** (0.0047)	-0.0263*** (0.0048)	-0.0274*** (0.0048)
Population group: Coloured	-0.1276*** (0.0071)	-0.1304*** (0.0072)	-0.0887*** (0.0076)	-0.0910*** (0.0077)
Population group: Indian	-0.2308*** (0.0080)	-0.2362*** (0.0081)	-0.2318*** (0.0045)	-0.2361*** (0.0044)
Population group: White	-0.2635*** (0.0052)	-0.2687*** (0.0052)	-0.2467*** (0.0054)	-0.2510*** (0.0054)
Education spline: Primary	-0.0075*** (0.0017)	N/A	-0.0044** (0.0020)	N/A
Education spline: Secondary	-0.0322*** (0.0017)		-0.0288*** (0.0018)	
Education spline: Matric	-0.0822*** (0.0068)		-0.0810*** (0.0064)	
Education spline: Above Matric	-0.1102*** (0.0091)		-0.0890*** (0.0070)	
Years of education	N/A	0.0152*** (0.0023)	N/A	0.0189*** (0.0025)
Years of education squared		-0.0032*** (0.0002)		-0.0032*** (0.0002)
Child: 0-14 years	0.0822*** (0.0019)	0.0834*** (0.0019)	0.0623*** (0.0018)	0.0630*** (0.0018)
Elderly: >59 years	0.0441*** (0.0042)	0.0451*** (0.0042)	0.0073* (0.0039)	0.0074* (0.0039)
Male: 15-59 years	0.0362*** (0.0022)	0.0369*** (0.0022)	0.0399*** (0.0023)	0.0403*** (0.0023)
Female: 15-59 years	0.0375*** (0.0023)	0.0381*** (0.0023)	0.0420*** (0.0023)	0.0427*** (0.0024)
Pseudo R-squared	0.3186	0.3173	0.2974	0.2963
Observed probability	0.3378	0.3378	0.3186	0.3186
Predicted probability	0.2403	0.2465	0.2229	0.2272
Chi-squared statistic	9860.55	10172.94	7941.4	8154.39
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	60 103	60 103	55 414	55 414

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%



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Table 45: Probit regressions on non-money-metric poverty likelihood by including the over-Matric spline variable (marginal effects), all

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.0646*** (0.0049)	0.0688*** (0.0050)	0.0352*** (0.0042)	0.0367*** (0.0042)
Age cohort: 25-34 years	0.0690*** (0.0056)	0.0724*** (0.0057)	0.0298*** (0.0046)	0.0311*** (0.0046)
Province: Eastern Cape	0.1986*** (0.0160)	0.1999*** (0.0161)	0.1667*** (0.0141)	0.1674*** (0.0141)
Province: Northern Cape	-0.0036*** (0.0112)	-0.0040*** (0.0114)	0.0237** (0.0119)	0.0239** (0.0120)
Province: Free State	-0.0537*** (0.0085)	-0.0548*** (0.0086)	-0.0477*** (0.0059)	-0.0484*** (0.0059)
Province: KwaZulu-Natal	0.0674** (0.0118)	0.0688*** (0.0120)	0.0552*** (0.0100)	0.0557*** (0.0099)
Province: North West	-0.0565 (0.0070)	-0.0575 (0.0072)	-0.0462 (0.0058)	-0.0468 (0.0058)
Province: Gauteng	0.0213** (0.0107)	0.0224** (0.0109)	-0.0173** (0.0078)	-0.0174** (0.0078)
Province: Mpumalanga	-0.0571** (0.0070)	-0.0577*** (0.0072)	-0.0481 (0.0054)	-0.0485*** (0.0055)
Province: Limpopo	-0.0189*** (0.0092)	-0.0193** (0.0093)	-0.0343*** (0.0061)	-0.0346*** (0.0061)
Area type: Urban	-0.2935*** (0.0068)	-0.2967*** (0.0068)	-0.2364*** (0.0069)	-0.2377*** (0.0065)
Gender: Male	0.0076** (0.0033)	0.0070** (0.0034)	0.0042 (0.0031)	0.0038 (0.0031)
Population group: Coloured	-0.1144*** (0.0043)	-0.1169*** (0.0044)	-0.0923*** (0.0037)	-0.0934*** (0.0035)
Population group: Indian	-0.1235*** (0.0036)	-0.1262*** (0.0036)	-0.0897*** (0.0038)	-0.0906*** (0.0035)
Population group: White	-0.1460*** (0.0033)	-0.1487*** (0.0033)	-0.0966*** (0.0038)	-0.0980*** (0.0041)
Education spline: Primary	-0.0099*** (0.0012)	N/A	-0.0031*** (0.0012)	N/A
Education spline: Secondary	-0.0184*** (0.0012)		-0.0171*** (0.0012)	
Education spline: Matric	-0.0433*** (0.0050)		-0.0423*** (0.0045)	
Education spline: Above Matric	-0.0494*** (0.0050)		-0.0383*** (0.0047)	
Years of education	-0.0006*** (0.0016)	-0.0006 (0.0016)	N/A	0.0072*** (0.0015)
Years of education squared	-0.0012*** (0.0001)	-0.0012*** (0.0001)		-0.0016*** (0.0001)
Child: 0-14 years	0.0138*** (0.0011)	0.0140*** (0.0011)	0.0084*** (0.0010)	0.0085*** (0.0010)
Elderly: >59 years	-0.0055* (0.0029)	-0.0052* (0.0028)	-0.0264* (0.0025)	-0.0266*** (0.0025)
Male: 15-59 years	-0.0120*** (0.0015)	-0.0121*** (0.0015)	-0.0123*** (0.0013)	-0.0124*** (0.0013)
Female: 15-59 years	-0.0135*** (0.0016)	-0.0136*** (0.0016)	-0.0170*** (0.0015)	-0.0171*** (0.0015)
Pseudo R-squared	0.3451	0.3444	0.3287	0.3283
Observed probability	0.2317	0.2316	0.1854	0.1854
Predicted probability	0.1152	0.1177	0.0882	0.0891
Chi-squared statistic	9533.82	9517.70	7365.06	7419.07
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	60 103	60 103	55 414	55 414

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%



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Table 46: Probit regressions on money-metric poverty likelihood by including the over-Matric spline variable (marginal effects), youth

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	0.0141** (0.0071)	0.0144** (0.0072)	0.0116*** (0.0072)	0.0109*** (0.0072)
Province: Eastern Cape	0.0525*** (0.0175)	0.0531*** (0.0175)	0.0918*** (0.0181)	0.0919*** (0.0182)
Province: Northern Cape	0.1236*** (0.0200)	0.1243*** (0.0200)	0.0656*** (0.0192)	0.0655*** (0.0192)
Province: Free State	0.1645*** (0.0192)	0.1652*** (0.0193)	0.0740*** (0.0195)	0.0727*** (0.0195)
Province: KwaZulu-Natal	0.0232** (0.0167)	0.0255 (0.0168)	0.0500*** (0.0172)	0.0502*** (0.0172)
Province: North West	0.0129 (0.0185)	0.0133 (0.0185)	0.0357** (0.0190)	0.0353** (0.0190)
Province: Gauteng	-0.0260** (0.0168)	-0.0236 (0.0168)	-0.0450*** (0.0163)	-0.0454*** (0.0164)
Province: Mpumalanga	0.0398** (0.0180)	0.0413** (0.0181)	0.0019 (0.0180)	0.0019 (0.0181)
Province: Limpopo	0.1729*** (0.0196)	0.1731*** (0.0197)	0.0497*** (0.0185)	0.0488*** (0.0185)
Area type: Urban	-0.1569*** (0.0083)	-0.1578*** (0.0083)	-0.1774*** (0.0088)	-0.1775*** (0.0088)
Gender: Male	-0.0312*** (0.0069)	-0.0324*** (0.0069)	-0.0367*** (0.0070)	-0.0373*** (0.0070)
Population group: Coloured	-0.1607*** (0.0109)	-0.1627*** (0.0110)	-0.1006*** (0.0121)	-0.1017*** (0.0121)
Population group: Indian	-0.2941*** (0.0139)	-0.2975*** (0.0140)	-0.2967*** (0.0069)	-0.2972*** (0.0069)
Population group: White	-0.3135*** (0.0085)	-0.3161*** (0.0085)	-0.3121*** (0.0079)	-0.3128*** (0.0078)
Education spline: Primary	-0.0030*** (0.0042)	N/A	0.0111** (0.0051)	N/A
Education spline: Secondary	-0.0393*** (0.0025)		-0.0398*** (0.0029)	
Education spline: Matric	-0.0920*** (0.0091)		-0.0878*** (0.0089)	
Education spline: Above Matric	-0.1270*** (0.0124)		-0.0916*** (0.0191)	
Years of education	N/A	0.0289*** (0.0051)	N/A	0.0403*** (0.0058)
Years of education squared		-0.0043*** (0.0003)		-0.0047*** (0.0003)
Child: 0-14 years	0.0913*** (0.0026)	0.0919*** (0.0027)	0.0678*** (0.0026)	0.0679*** (0.0026)
Elderly: >59 years	0.0666*** (0.0064)	0.0672*** (0.0064)	0.0245* (0.0060)	0.0247* (0.0060)
Male: 15-59 years	0.0366*** (0.0030)	0.0370*** (0.0031)	0.0423*** (0.0034)	0.0423*** (0.0034)
Female: 15-59 years	0.0474*** (0.0033)	0.0477*** (0.0033)	0.0498*** (0.0034)	0.0499*** (0.0034)
Pseudo R-squared	0.2985	0.2974	0.2730	0.2729
Observed probability	0.3802	0.3802	0.3627	0.3626
Predicted probability	0.3154	0.3193	0.2938	0.2943
Chi-squared statistic	5996.82	6135.10	4693.14	4715.43
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	34 323	34 323	30 643	30 643

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table 47: Probit regressions on non-money-metric poverty likelihood by including the over-Matric spline variable (marginal effects), youth

	LCS 2008/09		LCS 2014/15	
	[I]	[II]	[I]	[II]
Age cohort: 15-24 years	-0.0043*** (0.0056)	-0.0043*** (0.0057)	0.0030*** (0.0047)	0.0027*** (0.0048)
Province: Eastern Cape	0.2097*** (0.0206)	0.2106*** (0.0207)	0.1518*** (0.0177)	0.1524*** (0.0178)
Province: Northern Cape	-0.0407*** (0.0153)	-0.0411*** (0.0155)	-0.0026*** (0.0156)	-0.0026*** (0.0157)
Province: Free State	-0.0815*** (0.0125)	-0.0822*** (0.0127)	-0.0758*** (0.0080)	-0.0768*** (0.0080)
Province: KwaZulu-Natal	0.0577** (0.0161)	0.0589*** (0.0162)	0.0362*** (0.0128)	0.0370*** (0.0129)
Province: North West	-0.0839 (0.0107)	-0.0844*** (0.0109)	-0.0711** (0.0078)	-0.0718** (0.0079)
Province: Gauteng	0.0081** (0.0153)	0.0094 (0.0155)	-0.0442*** (0.0108)	-0.0446*** (0.0109)
Province: Mpumalanga	-0.0922** (0.0102)	-0.0925*** (0.0103)	-0.0709 (0.0077)	-0.0715 (0.0078)
Province: Limpopo	-0.0415*** (0.0132)	-0.0420*** (0.0134)	-0.0630*** (0.0082)	-0.0638*** (0.0083)
Area type: Urban	-0.3343*** (0.0081)	-0.3361*** (0.0081)	-0.2740*** (0.0087)	-0.2755*** (0.0087)
Gender: Male	0.0033*** (0.0053)	0.0027 (0.0054)	-0.0020 (0.0046)	-0.0025 (0.0046)
Population group: Coloured	-0.1598*** (0.0060)	-0.1615*** (0.0061)	-0.116*** (0.0050)	-0.1175*** (0.0050)
Population group: Indian	-0.1688*** (0.0054)	-0.1706*** (0.0056)	-0.1103*** (0.0052)	-0.1115*** (0.0052)
Population group: White	-0.1808*** (0.0054)	-0.1824*** (0.0054)	-0.1240*** (0.0046)	-0.1254*** (0.0045)
Education spline: Primary	-0.0079*** (0.0033)	N/A	0.0006** (0.0031)	N/A
Education spline: Secondary	-0.0255*** (0.0019)		-0.0206*** (0.0019)	
Education spline: Matric	-0.0512*** (0.0074)		-0.0478*** (0.0059)	
Education spline: Above Matric	-0.0672*** (0.0088)		-0.0546*** (0.0077)	
Years of education	N/A	0.0077* (0.0041)	N/A	0.0169*** (0.0038)
Years of education squared		-0.0021*** (0.0002)		-0.0023*** (0.0002)
Child: 0-14 years	0.0183*** (0.0017)	0.0184*** (0.0017)	0.0097*** (0.0014)	0.0097*** (0.0014)
Elderly: >59 years	-0.0005*** (0.0047)	-0.0002 (0.0047)	-0.0306* (0.0037)	-0.0308* (0.0037)
Male: 15-59 years	-0.0154*** (0.0023)	-0.0153*** (0.0023)	-0.0125*** (0.0019)	-0.0126*** (0.0019)
Female: 15-59 years	-0.0152*** (0.0025)	-0.0153*** (0.0025)	-0.0174*** (0.0021)	-0.0174*** (0.0021)
Pseudo R-squared	0.3121	0.3116	0.3187	0.3184
Observed probability	0.2586	0.2585	0.2077	0.2076
Predicted probability	0.1645	0.1663	0.1101	0.1112
Chi-squared statistic	5790.53	5710.11	4603.66	4646.74
Prob. > Chi-squared statistic	0.0000	0.0000	0.0000	0.0000
Number of observations	34323	34 323	30 643	30 643

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

*** Significant at 1%

** Significant at 5%

* Significant at 10%

Table 48: Money-metric and non-money-metric poverty headcount rates of the youth population using different age thresholds

	Money-metric poverty rate		Non-money-metric poverty rate	
	LCS 2008/09	LCS 2014/15	LCS 2008/09	LCS 2014/15
15-34 years	0.3797	0.3619	0.2586	0.2070
15-24 years	0.4344	0.4112	0.2906	0.2358
15-29 years	0.4008	0.3809	0.2705	0.2176

Source: Own calculation based on the LCS of 2008/09 and 2014/15.

