INEQUALITY IN SOUTH AFRICA: A POSSIBLE SOLUTION WITHIN THE LABOUR MARKET

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submitted in partial fulfilment of the requirements of the degree of

MASTER OF COMMERCE

in the subject

FINANCIAL MARKETS

in the

DEPARTMENT OF ECONOMICS

at

RHODES UNIVERSITY

FEBRUARY 2016

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ABSTRACT

This study sets out to identify the most effective way in which persistently and unacceptably high levels of inequality can be reduced in South Africa. Three alternative approaches were identified from the literature and their impact explored statistically. They are: the introduction of a 'Social Solidarity Grant'; a decrease in unemployment by 5%; and a narrowing of the skill premium through an expansion of tertiary education.

It is important to note that the study makes no attempt at explaining how these outcomes might be implemented or achieved. Rather, it sets out to determine only the effect that such policies may have on measured inequality.

It was found that while the introduction of a new grant had a significant effect on inequality, this effect however, was once-off. The grant would be financed by individuals in the top decile through tax increases, which would be a complicated endeavour. Both job creation and a narrowing of the skills premium were significantly effective in decreasing inequality. The narrowing of the skills premium showed more promise due to its accelerating effectiveness in decreasing inequality over time and the fact that it directly addresses the problem of wage differentials.

It was noted that the extreme levels of poverty and unemployment in South Africa may dampen enthusiasm for policies that narrow the skills premium to reduce inequality. These characteristics make job creation a more popular policy option because of the positive impact on poverty and unemployment as well as on inequality.

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CHAPTER 1: INTRODUCTION

1.1 Context of the research

Inequality is considered to be a pervasive problem, especially in developing countries, and has consequently been a priority on the policy agendas of many governments the world over for quite some time. Inequality is a problem that involves a wide dispersion in either the wealth held or income earned between the rich and the poor - some people have much more than others. In an equal society people would all have more or less the same endowments in terms of income and wealth. According to the most recent data available, South Africa experiences one of the highest levels of income inequality in the world (World Bank, 2014).

The notion of inequality is accompanied by many questions. What causes inequality? Why does it persist? Is inequality necessarily bad? Why and how is it bad, if it is bad? If we can conclusively say that it is not a good thing how do we go about rectifying it? What policies have been used to address inequality in South Africa and other countries? Have these policies been effective?

These questions will be addressed in the review of the literature regarding inequality. Few authors deny that inequality is not a good thing. It not only impairs social development but also perpetuates poverty and diminishes the positive effects of economic growth.

According to authors such as Kuznets (1955), Kanbur (2011), Leibrandt et al (1999), Nattrass and Seekings (2001) and Ravallion (2001) inequality and its reduction are subjects deserving much attention. While the authors may not agree regarding what causes inequality or how it can best be reduced, they find common ground in the assertion that high rates of pervasive and persistent inequality are harmful.

Kuznets (1955: 2) was a pioneer in efforts to determine the "character and causes of long-term changes in the personal distribution of income". Kuznets (1955) argued that there is a concentration of savings within the upper-income brackets, the effect of which is a "concentration of an increasing proportion of income-yielding assets" in these upper-income brackets (Kuznets, 1955: 7). This means there is a cycle of saving, returns and reinvestment that creates a cycle of inequality.

Piketty (2014) agrees with Kuznets' (1955) notion that the wealthy save more. He places great weight on the differential between the rate of return on capital (r) and the rate of growth of national income (g). As long as $r > g$ – which Piketty believes is normally the case - there will be ever-increasing inequality (Piketty, 2014). This concept, however, is conditioned

upon the restriction that all returns to capital are re-invested - that the rate of saving from capital income is constant (Piketty, 2014).

Many authors disagree with Piketty (2014) regarding this restriction. Homburg (2014) believes that too much of Piketty's argument hangs on the assumption that all returns on capital are re-invested. Both Summers (2014) and Kuznets (unknowingly) call to question this restriction by bringing to light the fact that "the share of the top income groups shows no rise over time" (Kuznets, 1955: 8) despite the "cumulative effect of savings".

Kuznets (1955) stated that the second and more important piece of the inequality puzzle resides in "the industrial structure of the income distribution" (Kuznets, 1955). In early stages of economic growth, growth is accompanied by a movement away from agriculture and increasing urbanization and industrialization. As industrialization occurs there is a marked and significant increase in inequality as those working in urban areas earn more than those working in the rural areas (Kuznets, 1955). As this process continues and the population becomes more industrialized, inequality slowly begins to decrease (Kuznets, 1955). Therefore, as countries experience economic growth, income inequality initially widens, but it narrows as countries become more developed.

Piketty (2014) however posits that economic inequality is the natural order of things and will always automatically increase due to a higher propensity on the part of the wealthy to save and reinvest.

The question that arises if Piketty (2014) is correct in his assertion that inequality will rise automatically, is why is this problematic?

According to Nattrass and Seekings (2001), high levels of economic inequality are problematic because they undermine any notion of equal opportunity. Inequality of income translates into inequality of access to good quality education, inequality of access to effective healthcare, as well as inequality in the realization of basic human rights such as access to acceptable sanitation and access to clean drinking. Such inequalities translate into unequal opportunity and inequality persists in what can become a perpetual cycle. Scanlon (2014: 2) notes that "economic inequality undermines the fairness of the economic system itself".

This problem is illustrated in South Africa, which has one of the highest levels of income inequality as measured by the Gini coefficient in the world (World Bank, 2014). The poor become trapped in the cycle of poverty and are unable to escape because they have very little access to capability enhancing opportunities such as a good education. Not only do the poor not have access to productive opportunities, but their chances of escaping poverty are severely inhibited by the absence of key supporting elements such as clean drinking water,

adequate shelter, food and healthcare. The World Bank (2012: 1) notes: " An equitable society would not allow circumstances over which the individual has no control to influence her or his basic opportunities after birth: ideally, only the person's effort, innate talent, choices in life, and, to an extent, sheer luck, would be the influencing forces. This is at the core of the equality of opportunity principle, which provides a powerful platform for the formulation of social and economic policy - one of the rare policy goals on which a political consensus is easier to achieve."

Inequality also undermines both social cohesion and social progress (Nattrass and Seekings, 2001). In order to achieve both economic as well as socio-economic development, inequality must be addressed (Nattrass and Seekings, 2001)

To combat high levels of inequality, a clear understanding of the causes of inequality is needed. Only then can more strategically effective policies to combat the problem be developed.

A number of authors (van der Berg (2010), World Bank (2012), Barros *et al* (2010)) suggest that the causes of inequality stem from labour market outcomes and not from capital ownership as Piketty (2014) claims. Central to this claim is that the major driver of inequality is income inequality, and that differences in income are a direct translation of wage differentials in the labour market (van der Berg, 2010). In order to combat inequality proposed solutions must strike at the heart of this problem. Van der Berg (2010) suggests that the only way in which inequality in South Africa can meaningfully be decreased is by ensuring more equal labour market outcomes. Van der Berg (2010) argues that the wage earned by an individual is a function of their educational attainment or level of skill (also a function of educational attainment). Workers who are more educated or have higher skill levels receive what is called a skills premium. It is this premium that authors such as Lustig *et al* (2012) and van der Berg (2010) believe to be behind wage differentials and therefore income inequality.

In order to achieve more equal wage/earnings outcomes, there must be an improvement in education so as to increase the supply of skilled labour sufficiently to decrease the skill premium received by educated workers.

This approach towards combatting inequality has shown promise in South America with decreasing levels of inequality in Brazil, Chile and Argentina (Barros *et al*, 2010). The literature suggests that the primary difference in the approach towards inequality taken by countries like Brazil and Argentina and in the approach taken by South Africa, is that in Argentina and Brazil the idea that inequality is derived from the labour market takes centre-

stage in the processes through which it is combatted (Barros *et al*, 2010). By focusing on bringing down the skills premium Brazil, Argentina and Chile have achieved significant reductions in levels of inequality (Barros *et al*, 2010) whereas South Africa has not.

This approach towards combatting inequality is in sharp contrast to Nattrass and Seekings' (2001) proposal that low wage job creation is the key to solving problems of inequality.

This research seeks to test which of the potential policy approaches - increased education, low-level job creation and increased coverage of transfer payments – is most effective in reducing inequality.

1.2 Goals of the research

The goal of the research is to determine the extent to which inequality in South Africa originates within the labour market and therefore requires a reduction in the wage premium between skilled and unskilled workers for inequality meaningfully to be reduced. The findings will further the understanding of the dynamics of inequality in South Africa and may prove useful in guiding policies aimed at reducing current high levels of inequality in South Africa.

1.3 Methodology

The study demonstrates that a viable solution to the problem of inequality in South Africa lies within the labour market using the Gini Coefficient (the most widely used measure of inequality) and the accompanying Lorenz curve. It demonstrates that because inequality derives from wage differentials that exist in the labour market, in order to decrease inequality it is necessary to reduce the wage premium currently paid to skilled labour. This suggests that an increase in the supply of skilled labour will lower the Gini coefficient and reduce inequality.

This concept will be contrasted to a similar experiment in which the effect of a decrease in unemployment is brought about by an increase in low-income jobs - as is a common policy objective of many governments in the fight against inequality - on the Gini coefficient is ascertained.

The study also investigates transfer payments as a measure that can be used to combat inequality. This approach will be contrasted with employment creation and skills premium narrowing.

The results show that a far more significant and sustainable response in the Gini coefficient will be seen as a consequence of the increase in the supply of skilled labour. They also show that increasing employment by creating many more low-income jobs, while having a fairly significant effect on poverty, will have little effect on overall inequality. While transfer payments may have a significant initial effect on inequality, this approach is once-off and does not sustainably contribute to consistently declining inequality over time.

1.4 Organisation of the study

The first section of the literature review in Chapter 2 will examine the nature of inequality, looking into its persistence and the reasons why it continues to occur. In this section the relationship between inequality, poverty and growth will also be discussed in order to determine the importance of inequality in the context of poverty and economic growth. The second section will contextually examine the South African 'situation' in terms of poverty, inequality and growth, while also taking a close look at the policy approaches undertaken by the government in response to high levels of inequality and poverty. The effectiveness of these policies will be scrutinized.

Chapter 3 looks at countries who not too long ago were facing extreme levels of inequality, but who managed to reduce this inequality through imaginative and well thought-out policies. This section will also explore recent literature regarding how the combination of changes in the skill premium and contextual factors affect the way changes in the returns to different levels of education impact inequality.

Chapter 4 summarises the methods to be used in determining how the implementation of transfer payments, a decrease in unemployment and a narrowing of the skill premium will each individually impact inequality. Chapter 5 discusses the results of the research. Chapter 6 concludes.

It is important to note that this study merely explores hypothetical approaches to combatting inequality. While its conclusions provide important policy recommendations for reducing inequality, the 'how' behind the way or process/es through which these policy measures can be attained or realised (in order to then decrease inequality) is not within the scope of this study.

1.5 Ethical issues

As the research makes use only of data that is in the public domain, no ethical issues other than the requirements of objectivity and avoiding bias were encountered.

CHAPTER TWO: INEQUALITY AND GROWTH

2.1 Causes of inequality

Simon Kuznets (1955: 2) was a pioneer in his effort to determine the "character and causes of long-term changes in the personal distribution of income". Although many have come after him, his work still stands as a hallmark in the discourse of distribution economics. He attempted to establish some sort of pattern or trend regarding the inequality of income distribution in the course of a country's economic growth. He sought to explain the factors determining the trends of income inequality over time (Kuznets, 1955).

Although he experienced a scarcity of data Kuznets attempted to show that prior to the World Wars (between the years 1880 and 1913) countries such as the United States, Prussia and the United Kingdom experienced high levels of inequality with large concentrations of wealth (Kuznets, 1955). However, his data suggested that, although high levels of inequality were displayed prior to the World Wars, there was a marked reduction in inequality over time. The income held by the top quintiles decreased in post-war times and the income held by the bottom quintiles began to increase - demonstrating a trend of diminishing inequality (Kuznets, 1955).

In his attempt at explaining these trends (which he believes come very close to guesswork), Kuznets (1955) states that "we are at a relatively early stage in a long process of interplay among tentative summaries of evidence". Therefore his work is merely a building block for further advancements in the conception and understanding of inequality.

The first reason given by Kuznets (1955) regarding the mechanics behind increasing inequality is the notion that there is a concentration of savings within the upper-income brackets - "According to all recent studies of the appointment of income between consumption and savings, only the upper-income groups save" (Kuznets, 1955: 7). The effect, holding other factors constant, of inequality in savings levels is that (assuming continuous reinvestment) there would be a "concentration of an increasing proportion of income-yielding assets" in the upper-income brackets (Kuznets, 1955: 7). This means there is almost a continuous cycle of saving, returns and reinvestment that perpetuates inequality.

Although Kuznets (1955) hypothesized this in 1955, the notion that the wealthy save more, or that those who are not wealthy do not (or often cannot) save, is supported by other authors of his time as well as more contemporary authors. Kaldor (1956) agreed that the wealthy have a higher marginal propensity to save than the poor. He suggested that inequality

is actually necessary for economic growth. In a position of high initial inequality of income, there will be high levels of aggregate saving by the wealthy (due to their higher marginal propensity to save) (Kaldor, 1956). This in turn, Kaldor (1956) argued, will result in higher capital accumulation, which in turn equates to higher economic growth. The result, Marniesse and Peccoud (2003) note is that "Because of the correlation between savings and the growth rate, unequal economies will have higher growth". Kaldor's (1956) theory of the positive relationship between growth and inequality has been successfully challenged by contemporary authors. This will, however, be discussed later in this section.

Thomas Piketty (2014), the author of *Capital in the Twenty-First Century* agrees with Kuznets' (1955) earlier notion that the wealthy save more than the poor or middle classes. He places great weight on the differential between *r* and *g* (where *r* is the rate of return on capital while *g* is the rate of growth of national income), saying that as long as $r > g$ there will be ever-increasing inequality (Piketty, 2014). This concept, however, is conditioned upon the restriction that all returns to capital are re-invested - that the rate of saving from capital income is constant (Piketty, 2014).

Many authors disagree with Piketty (2014) regarding this restriction. Homburg (2014) believes that too much of Piketty's argument hangs on the above restrictive assumption (that all returns on capital are re-invested). While both Summers (2014) and Kuznets (unknowingly) call to question this restriction by bringing to light the fact that "the share of the top income groups shows no rise over time" (Kuznets, 1955: 8) despite the "cumulative effect of savings". Summers (2014) illustrates this by comparing *Forbes'* lists of wealthiest Americans in 1982 and 2012. He found that less than one tenth of the 1982 list was also found on the 2012 list. Summers 92014) notes this should not be the case if the wealth was re-invested as posited by Piketty (2014). Summers (2014) also noted that the share of people on this list who inherited their wealth is in sharp decline.

Summers (2014) goes on to say that it would make more sense that those with less wealth would save - so as to accumulate some wealth. Summers (2014) argues that the world is changing. Globalisation has made possible returns on labour that far exceed returns on capital; this is the case concerning the gains experienced by a significant amount of individuals who reside in the top 1% of wealth (Summers, 2014).

Kuznets (1955) attributed the lack of a rise in the share of top-income groups to "legislative interference" and "political decisions" - for example government actions such as induced inflation or harsh progressive taxation which erode the economic value of accumulated wealth. Another reason would be the need for businesses to maintain pace with

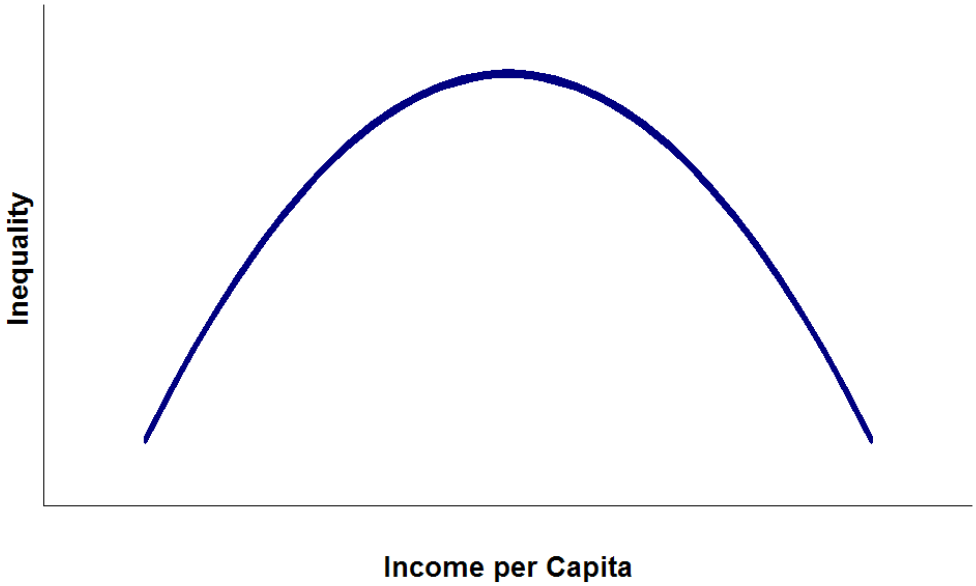
the development of the rest of the world as new industries establish themselves. Those individuals that have made their fortunes in other industries may find themselves being pushed out of the market or struggling to keep up with the pace of the rest of the world. Kuznets (1955: 10) concludes that "the successful and great entrepreneurs of today are rarely the sons of the great and successful entrepreneurs of yesterday".

Kuznets (1955) believed that besides saving done by the upper income-brackets, inequality has another source. The second piece to the puzzle resides in "the industrial structure of the income distribution" (Kuznets, 1955). In early stages of economic growth, growth is accompanied by a movement away from agriculture - a process known as industrialisation (Kuznets, 1955).

Kuznets (1955) provided the following example by way of illustration. First assume that the income distribution of a total population is a combination of the income distributions of both the rural (agricultural) and urban (industrial) populations. The average per capita income of the rural population is less than that of the urban population, so as industrialisation occurs, there will be movement away from the rural population into the urban population (where per capita income is higher) Initially, Kuznets (1955) noted from available data for the United States, there will be little inequality as no industrialisation has occurred. Then as industrialisation occurs there is a marked and significant increase in inequality as those working in the urban population earn more than those working in the rural population (Kuznets, 1955). However, as this process continues and the population becomes more industrialized, inequality slowly begins to decrease (Kuznets, 1955).

What can be taken from this is that as countries experience economic growth, an initial widening of income inequality occurs (and is demonstrated empirically). But as countries become more developed as a result of industrialisation, inequality narrows. This is illustrated by the Kuznets curve shown in Figure 1.

Figure 1: The Kuznets curve



(Source: Higginson and Williamson, 1999)

As Figure 1 demonstrates, Kuznets (1955) theorizes that initially, before periods of growth, there is not much inequality, but as income increases as the country in question experiences growth (develops) there is an initial significant increase in inequality. However, as development continues and more growth is experienced there is a decrease in inequality (Kuznets, 1955). Growth in the form of development first increases inequality and then decreases inequality. Following a period of continued development growth can be "shared by everyone" (Kuznets, 1955).

Kuznets (1955) theory appeared to be supported by the evidence at the time. Empirically the countries who were still experiencing high levels of inequality were the "developing countries" (Africa, Asia and South America) which had not experienced the same levels of growth experienced by the developed countries (Europe and the United States). Developing countries which are experiencing high levels of income inequality are on the rising part of the Kuznets curve. With further development through economic growth it is plausible that rates of inequality would diminish as development takes place (Kuznets, 1955).

Kuznets (1955) noted, however, that although the available evidence and theory seemed to fit together, it is dangerous to assume that the inequalities experienced in developing countries is a necessary requirement for the future diminishment of inequality, or that developing nations will automatically follow the same path of the developed nations

(Kuznets, 1955). However, it would also be dangerous to ignore these trends and patterns completely in searching for solutions to problems of inequality (Kuznets, 1955).

2.2 Growth and inequality

Kuznets (1955) disagreed with Kaldor's (1956) hypothesis that there is a positive relationship between growth and inequality. Bourguignon (2003: 71) states that "poverty reduction in a given country and at a given point of time is fully determined by the rate of growth of the mean income of the population and the change in the distribution of income". Ravallion (2001) agrees, noting that the extent to which growth can diminish poverty lies between the interactions between inequality and growth.

Bourguignon (2003) provides a few facts on the relationship between growth, inequality and poverty. First, he demonstrates that both growth and inequality have major roles in generating changes in poverty (Bourguignon, 2003). The effect of changes in income and inequality depend on the initial levels of both. Inequality dampens the effect of growth on poverty (Bourguignon, 2003). The lower the levels of inequality in a country, the more effectively growth will reduce poverty. High levels of growth in the context of high levels of inequality will lead to a much smaller reduction in poverty than high levels of growth accompanied by low levels of inequality (Bourguignon, 2003).

The obvious outcome is that in order to effectively combat poverty, a nation must lower inequality. This Bourguignon (2003) notes is the most efficient way to fight poverty. Bourguignon (2003: 83) concludes that "both growth and distribution elasticity of poverty depend positively on the level of development, and negatively on the degree of inequality". Therefore effective redistribution policies may yield a "double dividend". They not only reduce poverty today, but also accelerate poverty reduction in the future (Bourguignon, 2003).

Marniesse and Peccoud (2003) believe that the link between development and the evolution of inequality is heavily country-dependent. They believe that initial conditions (which are country-specific) play a large role in the relationship between growth, poverty and inequality for any given country. Therefore they believe that the Kuznets curve is relevant to many countries (Marniesse and Peccoud, 2003). Kanbur (2011) agrees that the Kuznets curve is relevant today, but argues that development does not only refer to growth. It refers also to many other important aspects of a country, such as infrastructure and effective public services. Growth is essential for development, but how that growth is harnessed is critical. If

the growth is harnessed correctly, development (achieved through this harnessed growth) should start to diminish inequality as well as poverty (Kanbur, 2011).

Today economists agree that inequality has a negative impact on economic growth (Marniesse and Peccoud, 2003). There are two obvious channels through which economic growth is hampered by inequality (Marniesse and Peccoud, 2003). There is a socio-political argument that insists that when there is inequality in a democratic context, there will be a high demand for income redistribution, a part of which will occur through strong progressive taxation (Marniesse and Peccoud, 2003). This in turn will discourage the rich from investing or even remaining in the country in question. This will affect growth through the traditional channels of the economy (Marniesse and Peccoud, 2003).

Dercon (2003) posits that the imperfect nature of credit markets also leads to sub-optimal credit access for the poor. Because markets are imperfect, an individual's access to credit is dependent on both their income and their collateral. As a result, the "unequal distribution of wealth has an impact on both removing an individual from poverty (poverty traps for those who cannot borrow to improve their income) and the growth rate (non-financing of economically viable projects)" (Dercon, 2003: 48).

2.3 Summary and conclusion

The literature highlights that not only is inequality harmful in a socio-economic sense, but it is also harmful towards development, growth and the eradication of poverty. As Kuznets (1955) explained, we cannot simply assume that as development continues there will be a decline in levels of inequality in developing nations. We also cannot simply ignore the empirical evidence suggesting that it is possible that inequality is a symptom of early development. What we can do is attempt to find the kind of development that will decrease widespread income inequality. Alternatively we can attempt to find a way to decrease inequality so that growth becomes more effective in both decreasing poverty, fostering development and then further decreasing inequality. This is the "double dividend" to which Bourguignon (2003) referred.

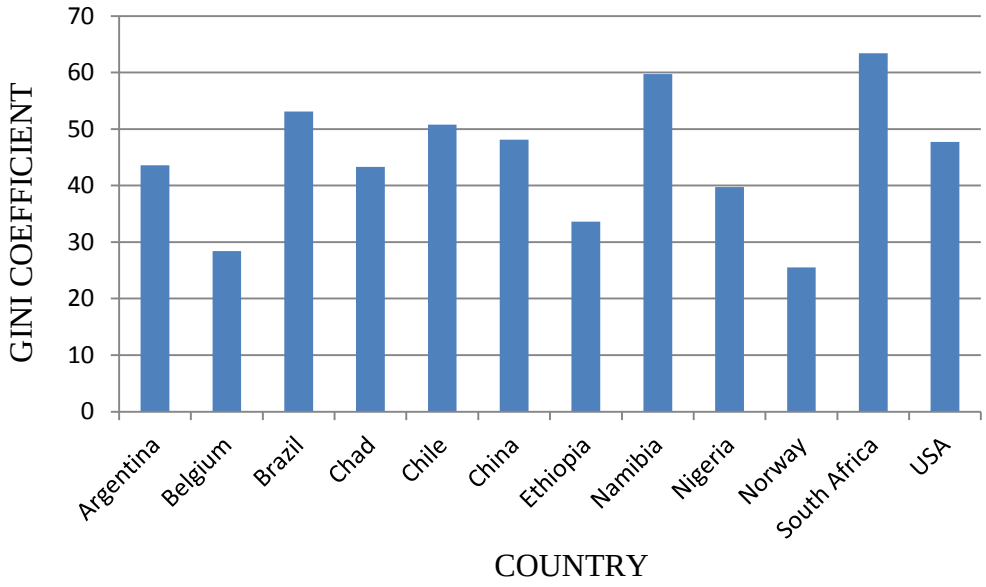
In the next chapter reasons for South Africa's very high inequality are discussed. Brazil's experience of reducing very wide inequality is then examined for possible lessons for South Africa.

CHAPTER 3: A COMPARISON OF INEQUALITY IN SOUTH AFRICA AND BRAZIL

3.1 Introduction

According to the World Bank (2014) South Africa is one of the most unequal countries in the world. A comparison of South Africa's Gini Coefficient with other countries is shown in Figure 2. This confirms South Africa's exceptionally high level of income inequality.

Figure 2: Global comparison of income inequality as measured by the Gini Coefficient



(Source: World Bank, 2014)

3.2 The role of Apartheid

South Africa's exceptionally high levels of income inequality must be understood in the context of its history. This history is well known and the direct consequences of it are abundantly clear today. Prior to the end of Apartheid all individuals who fell under the description of "Non-White", held few rights in the eyes of the ruling government at the time (Gelb, 2003). This regime was characterised, amongst other things, by the displacement of

"Non-Whites" (through the Group Areas Act) that found the majority of the population occupying a minority of the land, and with pitiful access to education that was taught in a language not endemic to the 'non-white' population, rendering it unproductive (Møller, 1998). There was a general disregard towards of basic human rights for the 'non-white' population of South Africa - universal rights that are now constitutional (Møller, 1998). On top of this, in terms of earning a living it was practically impossible for a black individual to earn a decent living. 'Blacks would get paid much less than whites for doing the same job (Nattrass and Seekings, 2001). Therefore racial discrimination was an important determinant of wage inequality (Nattrass and Seekings, 2001).

Nattrass and Seekings (2001) believe that the majority of inequality today is still derived from the labour market. It was not until the early 1970's that there was a decline in the impact of racial discrimination in wage determination (Nattrass and Seekings, 2001). According to Nattrass and Seekings (2001: 51), between the early 1970's and 1993 "the contribution of racial discrimination to wage determination is estimated to have dropped from 20 to 12 percent of the average black wage". At this time there was also upward mobility into better-paying occupations, which raised the wages of many black employees (Nattrass and Seekings, 2001). Although there was a clear decline in the gap between the wages received by white and black employees between the early 1970's and 1993, by 1993 the average earnings of whites was still five times the average earnings of blacks (Nattrass and Seekings, 2001).

By the end of Apartheid and the advent of democracy in 1994, at the widespread effects of apartheid were apparent to anyone who cared to look. A constitutional mandate was taken on by the South African Government to uplift those people who had been previously disadvantaged, making promises to effect widespread redistribution and combat acute poverty.

3.3 Inequality in Post-Apartheid South Africa

It is clear that race is still a significant factor in inequality in post-Apartheid South Africa. Nattrass and Seekings (2001) note, however, that the racial gap in terms of earnings, assets and general access to things like good quality healthcare and education can no longer be explained by discrimination. The racial wage gap is now explained almost completely by factors such as "differences in education and skill, location (urban and rural), and economic sector" (Nattrass and Seekings, 2001: 52). Therefore, although discrimination does not

explain current trends of inequality and poverty, the remnants of an era defined by discrimination are still significant. It is black workers who have the lowest education qualifications, who live primarily in rural areas and who have the highest concentration of workers in the low-paying informal sectors such as agriculture and domestic self-employment (Nattrass and Seekings, 2001). However, black workers who are educated can command up to an extra 8% on wages and salaries for every extra year of primary education, an extra 16% for every year of secondary education and up to an extra 29% for every year of tertiary education (Nattrass and Seekings, 2001: 52).

Although these estimated outcomes sound promising when looking for solutions to continued very high inequality, acquiring good quality education in reality is easier said than done. Also, although higher paid educated black workers change the composition of inequality they do not reduce inequality as a whole (see Figure 2). This highlights an institutional problem in the cycle of inequality that is not racial in nature (Nattrass and Seekings, 2001).

The difference in earnings between rural and urban workers brings to mind Kuznets conception of economic development and inequality. What is seen here is that, contextually speaking, his theory is applicable. Those who work and live in rural areas earn the lowest wages - and this accounts for a substantial amount of nationwide inequality. This raises the possibility that inequality in South Africa may be a symptom of early development.

According to the most recent calculations done by the World Bank, South Africa, with a Gini coefficient of 0.65, is currently the most unequal country in the world (World Bank, 2014). Woolard *et al* (2009) found that between 1993 and 2008 the top decile (the richest 10% of the population) in South Africa increased their income share from 54 percent of total income to 58 percent. They also found that during this period, the bottom 40 percent of the population increased their portion of national income by 5 percent (Woolard *et al*, 2009). Thus the only groups who gained in terms of income share were the top 10 percent and the bottom 40 percent (Woolard *et al*, 2009).

Over the period 1993 to 2008 the Gini coefficient increased. However, this cannot all be attributed to income inequality between different race groups. Using the Gini coefficient and the Theil index (which allows for the decomposition of inequality into different groups with each group having a different share that it contributes towards total inequality) Woolard *et al* (2009) were better able to understand the nature of inequality in South Africa. The authors (Woolard *et al*, 2009) found that the within-race inequality occurring in the African, Coloured, White and Asian/Indian groups all increased steadily between 1993 and 2008. The

African population has the highest within-race inequality in the sample, while the white population has the lowest within-race inequality (Woolard *et al*, 2009).

Given South Africa's history, one would expect between-race inequality to be the biggest driver of total income inequality in South Africa but this is not the case. Woolard *et al* (2009) established that between-race inequality (inequality between whites and Africans for example) was only responsible for 41 percent of total inequality. The other 59 percent of inequality was driven by the within-race inequality (Woolard *et al*, 2009).

Although income inequality between races is smaller than income inequality within races, South Africa's within-race contribution "is amongst the highest in the world - if not the highest" (Leibrandt *et al*, 1999: 20).

It must be noted however that between-race inequality has shown improvement, most dramatically between 1993 and 2000, and continues to decrease (Bhorat and van der Westhuizen, 2012). While the outcomes were not identical numerically, and slightly different time segments were used, the findings just mentioned are supported also by Bhorat and Van der Westhuizen (2012), Leibrandt *et al* (1999), Gelb (2005), Bhorat *et al* (2000) and Nattrass and Seekings (2001).

Why has inequality worsened since 1993? Nattrass and Seekings (2001: 60) believe that a central aspect in the reduction of both inequality and poverty is job creation, as they hold that "access to wage employment is a key determinant of inequality in South Africa". They argue that considering that such a massive portion of the workforce is unemployed, job creation has to take centre-stage of any strategy aimed at bringing about a significant or sustainable decrease in inequality (Nattrass and Seekings, 2001). The outcomes of government policy in growing the economy and promoting job creation are therefore critical in considerations regarding the causes worsening levels of inequality.

In 1998 the ANC adopted orthodox economic policy in the form of GEAR - a strategy premised on increasing growth, employment and redistribution. A core tenet of this policy was to reduce the government deficit, and by complying with orthodox notions regarding economic policy foreign investors would be attracted to South Africa. The outcome Nattrass and Seekings (2001: 61) suggest is that "investment and output growth has been disappointing, and employment has declined".

There is mounting evidence, which suggests that anti-inflationary policies undermined growth in developing countries, including South Africa (Nattrass and Seekings, 2001). Another potential problem could be that the continuation of "trade liberalization in the absence of labour-market reforms" (Nattrass and Seekings, 2001: 61) resulted in employment

losses. Import-competing industries were hit hard while at the same time exporting industries have become increasingly capital-intensive (Nattrass and Seekings, 2001).

The continual growth of wages, even when demand is low, also contributes to decreasing employment, while the minimum-wage-setting machinery of South Africa has allowed big unions to extend these wages across entire industries, harming smaller firms that are more labour-intensive (Nattrass and Seekings, 2001). Promises made in the GEAR document that wage agreements would be sensitive to "regional labour market conditions, the diversity of skills levels in firms of varying size, location or capital intensity" have not been fulfilled (Nattrass and Seekings, 2001: 62). On the contrary, labour market regulation has tightened, "and even in areas earmarked as Industrial Development Zones, labour regulations and minimum wages apply, with the result that only large capital-intensive megaprojects have been attracted there (Nattrass and Seekings, 2001: 62).

Higher wages and decreasing employment have made the economy more capital-intensive - which is not good for job creation (Nattrass and Seekings, 2001). So, Nattrass and Seekings (2001) suggest, a large portion of rising inequality is explained by a combination of increased wages and falling employment.

3.4 Impact of transfer payments

Bhorat and Van der Westhuizen (2012) and Bhorat *et al* (2000) claim that growth post 1994, has been pro-poor – the income share held by those deemed as poor has increased over this time. This finding can be judged against those of Bourguignon (2003) discussed above which emphasized the ability of economic growth to diminish poverty through the channelling of growth through the economy. An exception to this rule was that the impact of growth on poverty (as well as possibly through the same channels, its impact on inequality) could be hampered by present levels of inequality which would render any channelling of economic growth to the poor less effective (Bourguignon, 2003). This would appear to be the case in South Africa.

Bhorat *et al* (2000) estimate that the only reason that growth post-1994 was pro-poor was because of the introduction of social grants. They show that without the social grants the poor in fact experienced a declining income share (Bhorat *et al*, 2000). Without grants, the upper income brackets were the only ones who gained in income share. The finding by Woolard *et al* (2009) that the lower 40 percent of the economy showed modest increases in income share can be attributed to transfer payments by government to the poor. Bhorat *et al* (2000: 48) note

that "in 2005, income inequality amongst the African population would have been 0.71 in the absence of the provision of social grants, when grant income is included the Gini coefficient declines to 0.61".

Woolard *et al* (2009) state that grant income, or transfer payments, are not effective in decreasing inequality. This may be true in the active sense of the notion, or in the sense that employing more grants now may not render a significant change in the state of distribution. However, it is clear that without transfer payments inequality would be far worse than is currently. Without grant income, a significant portion of households/individuals in the economy would have no income whatsoever (Gumede, 2009).

Although grant income has prevented an even worse distribution of income there is concern that the rate at which they are being rolled may not be sustainable. Bhorat *et al* (2000: 56) suggest that the state "should consider implementing complementary policy measures to the roll out of grant income, such as strengthening labour market policies and the education system". This idea that the solution to inequality can be found in the labour market and through it the education system is a view widely held by many authors and will be elaborated on in the next section.

3.5 Importance of the labour market and education

Given South Africa's extremely high levels of unemployment, it would seem likely that inequality is driven by the 30% of the population who earn nothing at all (when using the broad definition of unemployment) (Leibrandt *et al*, 1999). Therefore, following from this it would make sense that wage income is a key determinant of income inequality (Leibrandt *et al*, 1999). The suggestion is that the biggest driving force of inequality lies in the labour market. This notion is supported by many authors including Nattrass and Seekings (2001), Leibrandt *et al* (1999), Woolard *et al* (2009) and Gelb (2003). The most substantial root of inequality is said to involve the wage income received (or not received) by households/individuals in a population. One could assume that much of the dynamics driving inequality would involve households where there are no individuals employed (Leibrandt *et al*, 1999).

Woolard *et al* (2009) demonstrate the importance of labour in determining inequality by showing that the top deciles of the national income-share also display the highest rates of labour force absorption and participation. Conversely, the lower deciles of the national income-share have high rates of labour force participation, but much lower rates of labour

force absorption (Woolard *et al*, 2009). Therefore, it is difficult for people in the lower income-share population to find work and resultantly they experience high levels of unemployment.

The reason why there are much higher rates of labour absorption in the higher deciles is given by Woolard *et al* (2009) who suggest it is because the upper decile of national income-share has access to good quality education, and hence more access to skills.

Nattrass and Seekings (2001) likewise place great weight on the value of education in the dynamics of inequality. Education, or the skills learned through education, is/are imperative because the differences in skills held, or differences in education attained, ultimately determine the wage received. Wage differentials are therefore a direct product of skills differentials, with low levels of skill begetting low wages (Nattrass and Seekings, 2001). When applying this notion to the South African situation we can see that "if it were possible to include a measure of the different *quality* of education received by white and black workers (or rich and poor workers), then education would probably be able to explain an even greater portion of wage inequality" (Nattrass and Seekings, 2001: 52).

Gelb (2003) agrees that the root of inequality lies within the labour market, and has to do with wages received (or not received) and that this amount is for the most part dictated by the level of education and hence skill attainment. This is demonstrated by the fact that the high earners within the economy are all in the managerial or professional categories (areas requiring some level of formal education and skills) while the low income-earners are to be found in the informal sector for the most part where the demand is for unskilled or low-skilled labour (Gelb, 2003).

Lewis (2001: 46) states: "there is some evidence to suggest that trade-liberalisation and increased trade …have induced a structural change in production towards capital-intensive sectors… South Africa has a low and declining share of exports that use unskilled labour, and a high share using more skilled labour". This view is synonymous with Nattrass and Seeking's (2001) critique of GEAR. Gelb (2003) judges this to be a "counterintuitive outcome" taking into account South Africa's abundant supply of unskilled labour.

Edwards (1999) believes that the main driver of unemployment in the areas of the economy that require relatively little to no skill, has been labour-displacing technical change. A structural change such as this favours those with higher levels of education and "further entrenches inequality" (Gelb, 2003: 20).

The structure of these variables explains South Africa's high levels of poverty, unemployment and resultant inequality. It can be concluded that inequality for the greater

part is derived out of labour market placement (wage income received), which itself is a primary derivative of education received and skills attained.

Van der Berg (2010) refers to South Africa as a middle-income country with low-income country indicators - what he calls a "dual economy". He agrees that South Africa's racialised past offers only a small part of the explanation for current trends in poverty and inequality. Van der Berg (2010: 6) agrees with the sentiments of both Bourguignon (2003) and Ravallion (2001) regarding inequality and growth, believing that high levels of inequality dampen the positive effects of growth on poverty reduction; "sharp increases in inequality can overturn the effect of even large growth episodes. Thus growth and trends in poverty *jointly* determine trends in poverty."

Van der Berg (2010) also holds that between-race inequality is decreasing while within-race inequality is increasing. He goes on to state that " By far the largest share of overall current income is derived from the labour market" and believes that "most income inequality originates in the labour market, through the distribution of jobs and the wage formation process…differentials in wage earnings per household statistically explain 77,9% of inequality" (van den Berg, 2010: 15-16). Although van der Berg (2010) believes that social grants have little effect on the level of inequality (in accordance with the views of Woolard *et al* (2009)), he does not disregard the notion that if there were no social grants some households would receive no income at all, worsening levels of inequality. He suggests that the central role of social grants has been the reduction of poverty, and it is in this area that grants have been successful (Van der Berg, 2010). When it comes to inequality however, social grants have not shown promise in terms of reducing inequality. There is however evidence that social grants prevent the widening or worsening of inequality - that without social grants, levels of inequality would be worse.

Seeing as labour market outcomes explain such a big portion of inequality, it follows that more equal labour market outcomes (more equal earnings and wages) are a primary concern in achieving a decline in inequality (van der Berg, 2010). Van der Berg (2010) warns that if there are not more equal labour outcomes, aggregate inequality will remain high, which will encourage direct labour market interventions such as universal minimum wages. Nattrass and Seekings (2001) have warned that such an outcome will be unhealthy for the South African economy as it will retard low-income job creation.

Van der Berg (2010) however strongly disagrees with Nattrass and Seekings (2001) claim that job creation is the solution to rampant inequality. Using simulations based on IES2000 data van der Berg (2010: 16) shows that jobs would have a more beneficial effect on poverty

than on inequality – "2,5 million additional jobs would reduce the Gini Coefficient by only about 0,033, but would reduce the poverty headcount ratio by almost 9 percentage points". In order to significantly affect aggregate income distribution, the pattern of wage inequality itself needs to change (van der Berg, 2010). Moreover, there is a direct link between both the productivity of workers and the wage they receive and education - the higher the levels of educational attainment, the more productive the worker and the higher the wage the worker gets paid (van der Berg, 2010). This is then a reflection of the much higher demand for more educated workers (exemplified by the higher wage they would get paid) (van der Berg, 2010). Therefore, education is a central concern in labour market outcomes.

Van der Berg (2010) notes that below a certain threshold, an extra year of education is not valued highly by employers. This finding is supported by Finn *et al* 2015) and be further dissected later in this study (section 3.5.4). In order to receive higher wages, one needs to complete education up to and above this threshold (van der Berg, 2010). Often in South Africa this threshold resides at the level of tertiary education (Finn *et al*, 2015).

Anthony Atkinson, the author of the novel *Inequality* (2015), believes that the first steps towards decreasing inequality begin with a move towards "Restoring the welfare state" (Atkinson, 2015: 1). This would involve a direct return to progressive taxation (Atkinson, 2015). He also proposes a "new wealth transfer tax" that would involve the taxation based on the wealth an individual acquires over a lifetime in the form of bequests and gifts (Atkinson, 2015). Money from such taxation could then, Atkinson believes, be used to give a minimum inheritance for all on reaching the age of 18. Atkinson (2015) points out that inequality is still dependent upon the income people receive in the form of wages, capital income and interest (Atkinson, 2015). Therefore, he believes that addressing unemployment is essential in decreasing inequality, while also pointing out that not only is employment important, but also wage differentials within this area of concern (Atkinson, 2015)

In summary, it can be concluded that although job creation may be crucial for poverty reduction, it will do very little to reduce overall levels of inequality (van der Berg, 2010). The weak education endowments of those who would be employed would only secure them a job with low labour-market earning potential. Therefore even though they would be earning wages, these wages would be low, reducing the overall effect of job-creation on inequality (van der Berg, 2010).

Instead, the solution to inequality according to van der Berg (2010) is to increase the levels of educational attainment - "the labour market is at the heart of inequality, and central to labour-market inequality is the quality and extent of education" (van der Berg, 2010: 19).

Increasing the quality and extent (as well as magnitude of coverage) of education offered would decrease the demand for 'skilled labour' (because skilled labour would be more abundant) (van der Berg, 2010). The decreased demand for 'skilled labour' would then result in a decrease in the wages paid for that type of labour – this would in turn result in more equal labour market outcomes and ultimately declining levels of inequality (van der Berg, 2010).

The next section will further explore this notion by looking at the reasons for declining inequality in Brazil. An examination of Brazil is appropriate as historically Brazil had a Gini Coefficient even higher than South Africa's. Unlike South Africa, Brazil has succeeded in significantly reducing its inequality. This decline has been attributed, in part, to a declining "wage premium" as a result of improved education (Lustig *et al*, 2012).

3.6 Brazil

High levels and the overall persistence of inequality have been distinctive features of Brazil and many other countries in Latin America for a long time (Lustig *et al*, 2012). In the 1990's inequality started to show signs of declining in many countries in South America (Lustig *et al*, 2012). This section of the paper will focus primarily on Brazil's success in reducing inequality.

According to Lustig *et al* (2012), the primary factors involved in the decline in inequality in Brazil (and in some other South American nations) are the demand and supply for labour as well as government transfers (Conditional Cash Transfers (CCT's) to be specific).

The three largest countries to experience significant declines in inequality in South America are Brazil, Argentina and Mexico (Lustig *et al*, 2012). In terms of context it should be noted that during the periods of declining inequality Argentina experienced high levels of growth while Mexico and Brazil experienced only moderate levels of economic growth (Lustig *et al*, 2012). What is clear is that both the levels of non-labour income inequality and labour-income inequality declined in all three countries, and together were responsible for a decline in overall income inequality (Lustig *et al*, 2012). High growth was not the cause of these developments.

3.6.1 Determinants of the Decline in Inequality in Brazil

Brazil is known for having historically high and persistent inequality – at some points in its history it was regarded as having the highest levels of inequality in the world (Lustig *et al*, 2012). However, between 1998 and 2009 Brazil's Gini coefficient declined 5.4 percentage points decreasing from 0.592 to 0.537 (Lustig *et al*, 2012). Depending on the poverty line that is used, this decline in inequality can account for up to 50 percent of the poverty reduction that occurred over this period (Lustig *et al*, 2012). This reinforces the claims made earlier in this paper that lowered inequality can render economic growth more effective in lowering poverty. In order to fully decompose how this reduction in inequality was achieved, it is necessary to address the roles played by both labour-income and non-labour income (Lustig *et al*, 2012).

3.6.2 Non-labour income inequality

Barros *et al* (2010) found that 50 percent of the decline in income inequality can be attributable to a more equal distribution in household non-labour income. Non-labour income includes all income that is not derived from the labour-market, including income from rents, interest, dividends, private transfers and government transfers (Lustig *et al*, 2012). Lustig *et al* (2012) note that if one looks at all non-labour income (not including government transfers) it's effect on income inequality is "unequalizing". Those who earn non-labour income (excluding government transfers) will typically be individuals in the upper income brackets. Therefore this portion of non-labour income would be unequalizing (Lustig *et al*, 2012). According to Bergolo *et al* (2011), however, the effect of government transfers meant non-labour income was equalizing in terms of reducing inequality.

Soares *et al* (2007) believe that much of the success in achieving significant declines in inequality can be accorded to the positive effect of Conditional Cash Transfers (CCT's) by government, the primary such transfer being *Bolsa La Familia*.

Before October 2003 Brazil had four CCT programmes which were then combined in 2003 to form what we now know as the *Bolsa La Familia* programme. This unification was done in order to make the government transfer system more efficient (Soares *et al*, 2007).

The biggest premise behind the *Bolsa La Familia* programme are the conditionalities attached to the receipt of the transfers (Soares *et al*, 2007). The most important of these conditionalities is that all children of school-age were expected to maintain a 75 percent

attendance rate at school in order to fulfil the requirements necessary to receive this government transfer (Soares *et al*, 2007). This stipulation then progressed to require 85 percent school attendance from all school-age children in a household (Soares *et al*, 2007). On top of this, other conditionalities required by the *Bolsa La Familia* programme include updated immunization cards for children up to six years of age, as well as regular visits to hospitals or healthcare centres for women who are pregnant or breastfeeding (Soares *et al*, 2007). For families in extreme poverty, that have no children or pregnant women, conditionalities are loose, requiring only that there is participation in certain beneficial training programmes (Soares *et al*, 2007).

According to Soares *et al* 2007) and Barros *et al* (2010), the *Bolsa La Familia* programme has been a success, with qualitative studies showing that there is overwhelming compliance with the conditionalities amongst poor households (Soares *et al*, 2007). Authors such as Barros *et al* (2010) believe that these conditionalities have played a big role in the decline of inequality, most specifically the education conditionalities. The channels through which this would have an effect on inequality are discussed in detail below.

Conditionalities aside, Barros *et al* (2010) suggest that the effectiveness of the government transfers in diminishing inequality can be attributed to the *coverage* of the government transfers, and not the size or magnitude of the transfers themselves. In other words the success of the government transfers comes more from the fact that many people received them rather than from how big an amount the transfer was (Barros *et al*, 2010). Lustig *et al* (2012) conclude that the CCT portion of non-labour income's effect on overall inequality was significant enough to negate other non-labour income and still be responsible for 50 percent of the decline in total income inequality

As in Brazil, the decline in non-labour income inequality also accounts for a large portion of the decrease in overall income inequality in Argentina (Lustig *et al*, 2012). Similarly to Brazil, this decrease in non-labour income inequality has been attributed to the coverage of government transfer programmes such as the Unemployed Households Heads program (Lustig *et al*, 2012). However, during the period 2000-09 Argentina experienced high levels of growth. Gasparini and Cruces (2010) believe that the decline in inequality experienced by Argentina in this period is a result of the petering out of the effect of technological upgrading as well as strong labour-intensive growth. "Market forces have been complemented with state action" (Lustig *et al*, 2012: 4).

Mexico also had equalizing returns from government transfers. Again this can be attributed to the coverage of the transfers so that the inequality within non-labour income also

decreased (Lustig *et al*, 2012). In particular the increase in the coverage of transfers for agricultural producers (this programme being called *Procampo*) as well as Mexico's own CCT programme: *Progressa/Oportunidades* were significant. Coverage was important as the majority of the expansion in household non-labour income was due to the implementation and the expansion of the *Progresa/Oportunidades* (Lustig *et al*, 2012).

3.6.3 Labour-income inequality

Barros *et al* (2010) found that the changes within the distribution of household labour-income per adult accounted for 51% of the decline in total income inequality in Brazil between 2001 and 2006. This can be explained by an increase in the average labour income of working adults, as well as a decrease in labour-income inequality amongst the working population (Lustig *et al*, 2012).

Langoni (2005) showed that a large portion of the increase in inequality in Brazil that had occurred during the 1980s and 1990s occurred as a consequence of Brazil's educational system's failure to provide a prompt response to the demands of a growing economy. This brings up an important aspect regarding the nature of labour-income inequality. According to Barros *et al* (2010), a major determinant of the later fall in inequality in the distribution of labour income per working adult is education. It is through the price and substitution effects of changes in the distribution of schooling that changes in the distribution of labour-income occurred (Barros *et al*, 2010)[1].

Barros *et al* (2010) note that there is a large amount of literature that documents the way in which education affects the distribution of labour earnings through the price and quantity channels. The way in which the quantity effect works is that the more education a worker has, the more they earn (because more education typically means higher skill levels and therefore more productivity) (Barros *et al*, 2010). Therefore, the more inequality there is in terms of the levels of education that are attained, the more inequality there will be in earnings from labour (Barros *et al*, 2010).

On the other hand, the price effect involves the relationship between the amount of labour-earnings made and the level of education achieved – the price affect determines how

[1] At this point it must be stated that this paper assumes a classical approach to the mechanics and workings of the labour market, most pertinently with regards to the accompanying theory concerning the supply and demand of labour. This is opposed, for example, to the post-Keynesian view of the labour market which holds that the supply curve of labour "does not play a role in the determination of employment and wages" – ultimately a repudiation of the supply and demand approach to the labour market (Bekker, 1995: 453).

educational inequality is turned into income inequality (Barros *et al*, 2010). The steeper the relationship between labour earnings and educational achievement, the higher the skills premium paid (where the skills premium is the relative returns to workers with tertiary education and primary education). Conversely, the flatter the relationship between labour earnings and the level of educational attainment, the less inequality there will be in labour earnings (Barros *et al*, 2010).

Therefore, in order for education to contribute to a decrease in labour-income inequality, it is necessary to either have a decline in the inequality of education, or conversely a flattening of the relationship between labour-earnings and education (Barros *et al*, 2010).

In Brazil there was a reduction in the skills premium paid to workers (Lustig *et al*, 2012). This happened because there was increase in the abundance of skilled workers. This meant there was an increase in the supply of skilled labour which in turn resulted in a decrease in the wage paid to skilled workers (this is demonstrated through the decrease of the skills premium) (Lustig *et al*, 2012). The result then is that through higher levels of education (as a result of CCT programmes like *Bolsa La Familia*) and wider coverage, more individuals were able to gain a good education. Access to education became more equal which meant that there was a decrease in the inequality of education (Lustig *et al*, 2012). As explained above, more equal education outcomes decrease the skills premium which in turn makes labour-market earning outcomes more equal as well by decreasing the inequality of education (which starts off the entire process), and flattening of the relationship between educational attainment and labour earnings (which occurs because of the abundance of skilled labour and is resultantly a decrease in the skills premium) (Barros *et al*, 2010).

3.6.4 The Critical Level of Schooling

At this point it must be noted that declining inequality in educational attainment does not always translate into a decline in earnings inequality. This outcome has been demonstrated in South Africa, where there has been a decrease in inequality in schooling, but this has not had an effect on persistently high levels of inequality (Finn *et al*, 2015). In fact, it could be the case that, initially, a decline in the inequality in educational attainment could first cause an increase in earnings inequality. However, Finn *et al* (2015) agree that, in the long run, decreases in schooling inequality will ultimately lead to decreases in earnings inequality.

Finn *et al* (2015) believe that it is not as simple as stating that increasing levels of education will decrease levels of inequality. There are important contextual features specific

to different countries that play a role in the effect that changes in education will have on earnings inequality. Finn *et al* (2015) refer to a summary statistic that has been for the most part overlooked by the literature surrounding this topic: namely, the year of schooling which separates equalizing from disequalizing increases in returns to schooling.

Finn *et al* (2015) note that this summary statistic is the level of educational attainment that corresponds with the mean log earnings of the population, or the level of education associated with earning the mean log earnings of the population. They call this statistic the critical level. Increases in returns to education above this level of education will be disequalizing, while increases in returns to education below this level will be equalizing (Finn *et al*, 2015).

Another useful statistic used in conjunction with the critical level is the mean level of education attainment in the relevant county (Finn *et al*, 2015). If this level is below that of the critical level, then we know that the returns to education are convex in the country in question. Increases in returns to education at the mean level of educational attainment and even somewhat above it will be equalizing in nature (Finn *et al*, 2015).

This critical level, therefore, is the aforementioned context which determines how changes in the returns to education translate into changes in in earnings inequality (Finn *et al*, 2015). In order to decrease inequality, there must be movement towards this critical level from both directions - there must be a decrease in the variance around the critical level (Finn *et al*, 2015).Inequality will fall if there is a decrease in the returns to education for levels higher than the level that corresponds to the log mean earnings, and it will be decreased for increased returns to education below this level. Also, if the returns to education are convex, then increasing the mean level of education will also be equalizing (Finn *et al*, 2015).

Finn *et* al (2015) illustrate this concept using an example where the mean log earnings corresponded to a level of twelve years of education (or both primary and secondary education - this approximates to the critical levels for both South Africa and Brazil (Finn *et al*, 2015)). If this is the case, increases in returns to tertiary education, or education above twelve years would be disequalizing and decreases in returns to education above twelve years would be equalizing. The opposite is true for returns to education below twelve years - decreases in returns would be disequalizing while increases in returns would be equalizing.

Therefore, to understand the skill premium to be the relative returns to workers with tertiary education in comparison to those with primary and secondary education, it can be seen that decreasing the skills premium equates to decreasing the variance around the critical level – especially if this level is 12 years, or the end of high school.

It follows "that a major expansion in the tertiary education system is needed to reverse the rising relative wage (or skill premium) that deteriorates wage-inequality" (Blom and Velez, 2001: 24). An expansion such as this would, through the price and substitution effects mentioned above, increase the supply of skilled workers, thereby decreasing the skill premium afforded to that level of education (a decrease in the returns to education above the critical level) while at the same time increasing the returns to education below the critical level. The variance around the critical level would decrease. An expansion of tertiary education would also increase the mean level of education, further reducing earnings inequality.

Finn *et al* (2015) successfully demonstrate this theory using Brazil and South Africa as case studies, with special attention being paid to the 1990-2011 period. Although both countries experienced diminishing inequality in educational attainment, especially at the primary and secondary levels of education, Brazil experienced a decline in inequality while high levels of inequality persisted in South Africa (Finn *et al*, 2015). This is because in South Africa, returns increased at the top (above the critical level) and declined in the middle and lower parts of the distribution (below the critical level) (Finn *et al*, 2015).

Conversely, Brazil's average level of education and level of education associated with mean log earnings were both lower than South Africa. This meant that decreases in the inequality of education translated into an increase in the mean level of education - implying increasing returns to primary and secondary education as both the mean level of education and the critical level rose (Finn *et al*, 2015).

In addition, the premium afforded to educational attainment above the critical level (which in recent years can be seen as tertiary education) was comparatively smaller in South Africa, and has decreased in the past decade (Finn *et al*, 2015).

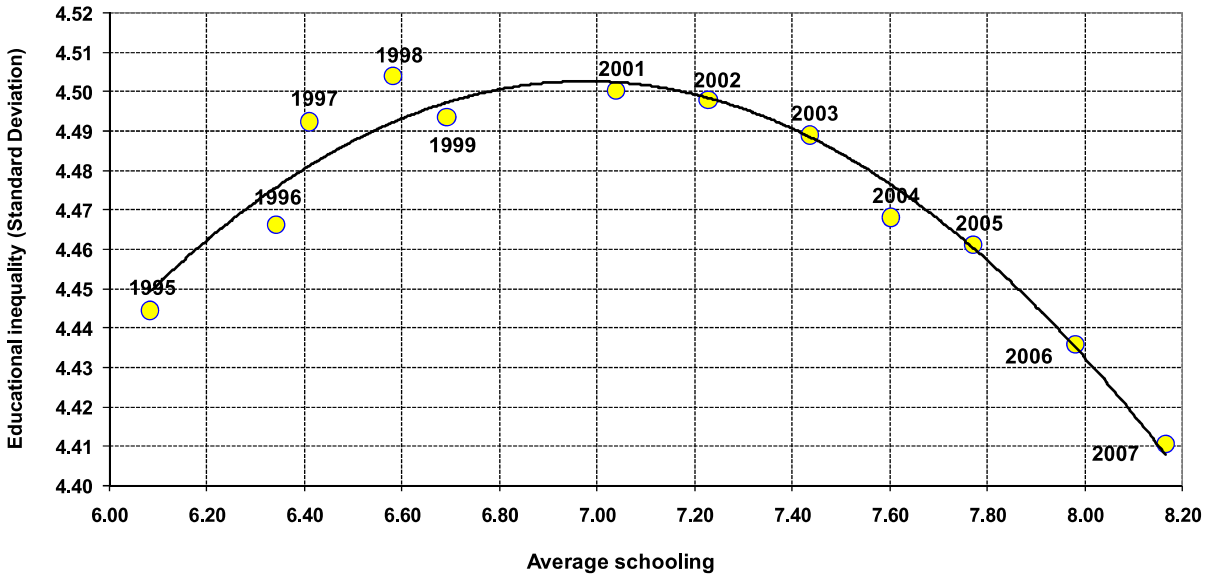
3.6.5 The Kuznets Curve and Brazil

Barros *et al* (2010) argue that as well as education playing a role, another important factor in the decline of labour-income inequality (and therefore total-income inequality) is the reduction in spatial and sectoral market segmentation in Brazil. Wage differentials between similar workers in urban and rural areas declined (Barros *et al*, 2010).

This finding draws certain similarities to Kuznets' theory of development and inequality mentioned earlier in this study. Kuznets (1955) posited that inequality is a part of development, and that a direct result of the earlier stages of development (as urbanisation and

industrialization begin) is inequality as people who live in metropolitan areas will earn much more than people in rural and agricultural areas. Seeing that Brazil has started showing declining inequality as well as a decrease in market segmentation, it is easy to see evidence of the Kuznets curve at work as Brazil continues to develop**.**

Figure 3: Education Inequality amongst workers in Brazil: 1995-2007



(Source: Barros *et al*, 2010: 53)

Figure 3 demonstrates that "education inequality begins to decline whenever average schooling exceeds some threshold level" (Barros *et al*, 2010: 52). The concavity of the graph also demonstrates that moving forward education inequality should decrease at an increased rate (Barros *et al*, 2010). In fact this reverse-relationship implies that the faster the expansion in education occurs, the "faster educational inequality and, consequently, income inequality will decline" (Barros *et al*, 2010: 53).

The relationship depicted in Figure 3 is very similar to the Kuznets curve depicted in Figure 1. It makes sense that the above relationship between average education and inequality should be linked to the original Kuznets curve that showed the relationship between development and inequality (Barros *et al*, 2010). As countries become more developed, so access to education increases. The more developed they become the faster the rate of educational attainment (Barros *et al*, 2010). This, according to Barros *et al* (2010) is one of the primary ways in which Brazil achieved lower inequality.

3.6.6 Lessons for South Africa

The declining inequality experienced in Brazil can be linked to van der Berg's (2010) solution to inequality in South Africa. Van der Berg (2009) believes that although creating employment is very important for poverty reduction, job creation is not a very effective weapon against inequality. Creating better and more equal educational outcomes is the catalyst for decreased inequality (van der Berg, 2009).

Brazil's successful approach towards reducing inequality is supportive of van der Berg's (2009) assertion that inequality can be combatted only through better and more equal educational outcomes. Although van der Berg (2009: 19) states that achieving these outcomes in South Africa is "inauspicious" right now, their success in Brazil demonstrates that education is integral to any attempt at achieving a more fair and equal income distribution in South Africa.

The goal of this research will be to demonstrate this finding by determining the most effective way in which the Gini coefficient in South Africa can be lowered.

A similar outcome can be seen in Mexico where the decline in inequality (especially through the labour-income channel) can also be attributed to a decline in the skills premium (Lustig *et al*, 2012). The decline in the skills premium in Mexico occurred because of changes in public spending on education in the 1990's – "these changes expanded both basic and middle education considerably", although there were also market forces at play in decreasing the skills premium (Lustig *et al*, 2012: 11).

Argentina on the other hand, which experienced high levels of growth during the period in question, did not achieve a fall in the skills premium through an increased supply of skilled labour. Lustig *et al* (2012: 5) conclude that in this case "during the 2000's, demand-cum-institutional factors are more important for the decline in the skill premium than the increase in the relative supply of skilled workers".

Other research regarding different methods in which inequality can be decreased include studies of the impact of taxing the rich in an attempt to decrease after-tax inequality. A Brookings Institute examination of the United States (Gale, Kearney and Orszag, 2015) showed that substantially higher taxation on the very wealthy was only able to reduce the Gini coefficient by the third decimal place. Similarly, a study by the World Bank on South Africa demonstrates that South Africa's progressive tax system does little to reduce its Gini coefficient (World Bank, 2014). The reason this method is not effective is because inequality (especially in a country as unequal as South Africa) lies across the entire income spectrum, not just at the top (Gale, Kearney and Orszag, 2015).

Another method is a variation of the first approach and involves the use of higher taxes on the rich to provide increased transfer payments to those lying at the bottom of the income spectrum. In the Brookings Institute study of the US, this approach was able to reduce the Gini coefficient by the second decimal place. Although this approach showed more promise than the first approach, the resultant effect is nonetheless very small and bordering on insignificant (Gale, Kearney and Orszag, 2015). Similarly, the 2014 World Bank report on South Africa showed that the introduction of grants reduced poverty in South Africa and prevented inequality from worsening, but has been unable to reduce inequality (World Bank, 2014).

The reason these approaches have been shown to be ineffective is because the major source of inequality can be found to lie within the labour market (van der Berg, 2009) and Lustig *et al*, 2012. To be more specific, the major source of income inequality is labour-income inequality (or the wage-differentials found in the labour market), the landscape of which is directly shaped by differing wage premiums on account of varying levels of skill (van der Berg, 2009, Lustig *et al*, 2012 and Barros *et al*, 2010).

The above two approaches are however useful in demonstrating how difficult it seems to be to significantly alter income inequality.

CHAPTER 4: METHODOLOGY

4.1 Introduction

It is important to note that the tests/scenarios undertaken in this section are not intended to directly model real outcomes. Rather, the intention is to illustrate and compare the hypothetical impact of different policy scenarios which are aimed at decreasing inequality.

4.2 Calculating the Gini Coefficient

The scenarios developed in this chapter make use of data from the Income and Expenditure Survey 2010/11 conducted by Statistics SA (Stats SA, 2012). The calculations make use of the household income given for 25 330 households in the sample population of the Income and Expenditure survey for 2010/11.

This study aims to ascertain the effects that three separate scenarios have on inequality by simulating and calculating the impact they have on inequality relative to the 'control' level of inequality – the level of inequality as it stood in 2010/11.

The manner in which inequality will be measured is the Gini coefficient. This statistic will be calculated by constructing the Gini coefficient's accompanying Lorenz Curve, and using this curve to calculate the Gini index or statistic.

In order to calculate the Lorenz curve, it is necessary first to have listed the income for each respective household in the survey. The incomes of each household must then be ranked from lowest to highest to reflect the income distribution from bottom to top (Farris, 2010). The distribution must then be separated into deciles or ten equal segments of households from the bottom of the distribution to the top (Farris, 2010).

Given that there are 25 330 households in the sample population, each decile will contain 2 533 households. To elaborate, using the ranked list of households and their respective incomes the first 2 533 households on the ranked list will make up the first decile, the 2 534th household up to the 5 066th household on the ranked list will make up the second decile and so on – until there are ten equal segments each containing 2 533 households and their respective incomes ranked from the lowest income in the first decile to the highest income in the tenth decile.

Tables 1, 2, 3 and 4 provide an example of the required calculations using an illustrative sample population of 20 households:

Tables 1, 2, 3 & 4: An illustrative example of data needed for calculating the Gini Coefficient for an illustrative distribution of income across 20 households

Table 1	
Households	**Income**
1	10
2	50
3	9
4	0
5	70
6	150
7	55
8	68
9	90
10	30
11	200
12	13
13	21
14	300
15	500
16	65
17	49
18	95
19	0
20	10

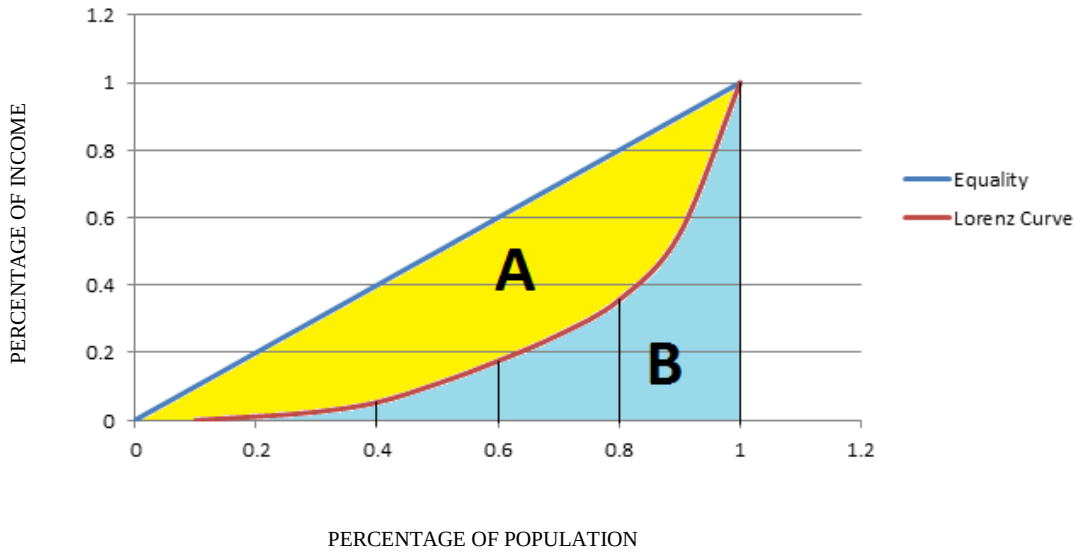
Table 2		
Households	**Income**	**Decile**
1	0	1
2	0	
3	9	2
4	10	
5	11	3
6	13	
7	21	4
8	30	
9	49	5
10	50	
11	55	6
12	65	
13	68	7
14	70	
15	90	8
16	95	
17	150	9
18	200	
19	300	10
	500	

Table 3										
Decile	1	2	3	4	5	6	7	8	9	10
Household Income In respective Deciles	0	9	11	21	49	55	68	90	150	300
	0	10	13	30	50	65	70	95	200	500
Mean Income	**0**	**9.5**	**12**	**25.5**	**49.5**	**60**	**69**	**92.5**	**175**	**400**
Total Mean Income	**893**									

Table 4				
Decile	**Population**	**Mean Income**	**Mean Income as a % of Total Mean Income**	**Cumulative Mean Percentage**
1	0.1	0	0	0
2	0.2	9.5	0.010638	0.010638
3	0.3	12	0.013438	0.024076
4	0.4	25.5	0.028555	0.052632
5	0.5	49.5	0.055431	0.108063
6	0.6	60	0.067189	0.175252
7	0.7	69	0.077268	0.25252
8	0.8	92.5	0.103583	0.356103
9	0.9	175	0.195969	0.552072
10	1	400	0.447928	1

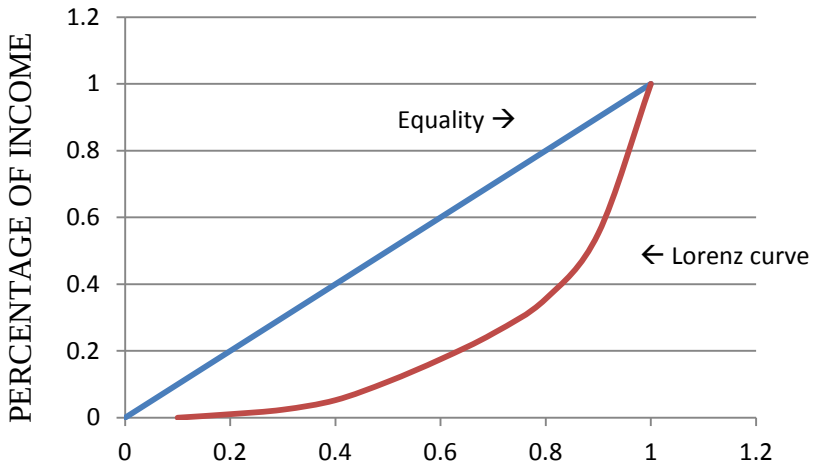
Once the sample income distribution has been ranked and placed into deciles (Table 2), the mean income of each decile is calculated (Table 3) (Farris, 2010). The total mean income across all the deciles is then calculated (Table 4) (Farris, 2010). The mean level of income for each decile must then be calculated as a percentage of the total mean income, after which the cumulative mean percentage of each decile must also be calculated (Farris, 2010). The cumulative mean percentage is then graphed in Figure 4 as the percentage that each decile represents of the population (Farris, 2010):

Figure 4: Illustration of area's that must be calculated in order to determine Gini coefficient.



A: Area A **B: Areas B**

Figure 5: Lorenz curve for the hypothetical population of 20 households



The Gini coefficient is the area above the Lorenz curve (area "A" in Figure 4) divided by the total area underneath the line of equality, which is equal to 0.5 (Farris, 2010). The area of A is given by 0.5 (the total area underneath the line of equality) less the area underneath the Lorenz curve (area "B" in Figure 3) (Farris, 2010).

The area underneath the Lorenz curve must therefore be calculated in order to calculate the area above the Lorenz curve. This is done by calculating the area of each 0.1 population segment using the properties of a trapezoid:

Area of each 0.1 population segment = $((b_1 + b_2)/2) \times 0.1$ (Farris, 2010)

where: b_1 and b_2 are the lower and upper bounds, respectively, of the segment being measured. The sum of the areas of each segment is the area underneath the Lorenz curve:

eg: $((b_1 + b_2)/2) \times 0.1$

((**0** + **0.010638**)/2) x 0.1

= **0.000532**

Table 5: Calculating the Gini Coefficient from the Lorenz curve

Cumulative Percentage	$((b_1 + b_2)/2) \times 0.1$	
0	**0.000532**	
0.010638	0.001736	
0.024076	0.003835	
0.052632	0.008035	
0.108063	0.014166	
0.175252	0.021389	
0.25252	0.030431	
0.356103	0.045409	
0.552072	0.077604	**Area B**
1	0.05	**0.253135**

The area underneath the Lorenz curve, area B is 0.25313

5. Using this value the area above the Lorenz curve can now be calculated:

Area A = 0.5 – Area B = 0.5 – (0.253135) = 0.246865

Therefore, the Gini coefficient for this distribution is: 0.246865/0.5 = 0.493729.

This method of calculating the Gini coefficient will be used in the three scenarios to follow.

The Gini coefficient will first be calculated using the data as it was recorded in the 2010/11 survey as a comparative/control statistic. For each scenario, the effects or outcomes of the scenario will be projected five years into the future *ceteris paribus*, starting at the beginning of 2011 accounting only for the changes brought about by the scenario itself as well as inflation year upon year.

4.3 South African income distribution in 2011

Table 6 depicts the income distribution for the sample population as it was in 2011. Applying the method described above for calculating the gini coefficient, the 2011 gini coefficient, or the 'control' gini can be calculated (note: numbers are rounded to the fourth decimal place):

Table 6: Income distribution in South Africa, 2011

Decile	1	2	3	4	5	6	7	8	9	10
Aggregate Income	4574	12853	18471	25588	33809	45690	65368	101530	179836	485247

Area under the Lorenz Curve = 0.1895

Area above the Lorenz Curve = 0.5 - 0.1895 = 0.3105

Control Gini = 0.3105/0.5 = **0.6201**

4.4 Policy Outcome 1: A 'Social Solidarity Grant'

The purpose of this scenario is to determine the effects that the introduction of a new grant would have on the level of inequality registered in 2011. This grant is purely hypothetical and will be referred to as the "Social Solidarity Grant".

In order to determine the magnitude or possible size of the grant, as well as determine which individuals should receive the grant, existing grants in South Africa were examined. In order to be hypothetically feasible this grant must be affordable, while at the same time it needs to be significant enough so that it would be effective in its goal: to create social solidarity.

The existing grant that seemed to most fit the above requirements is the Child Support Grant. In 2011, the time period under analysis, the Child Support grant was R290 per month (Hall, 2015). In South Africa, eligibility for grants is restricted through means testing, where certain financial requirements must be met in order for an individual to be eligible for a grant (Hall, 2015). As each grant is targeted at different social phenomena, the means testing for each grant is different. The means testing used for the Social Solidarity grant will be the same

as the means testing used for the Child Support grant. In order to be a recipient of the Child Support grant in 2011, an individual must show that they earn less than R31 200 per year (Hall, 2015). Therefore, in the scenario to follow, all individuals who earn less than this amount in the sample will be eligible for the Social Solidarity Grant (SS grant).

In order to 'fund' the new grant, the top earners in the first decile will be taxed the full amount of the revenue required to implement the grant.

On average there are 1.5 economically active individuals in each household (Stats SA, 2012). Therefore, for a household to be eligible for the SS grant, it must collectively earn no more than R31 200 x 150% = R46 800 annually (Stats SA). It is important to note that this refers only to labour income. Therefore it is necessary to unpack the labour income amount from the total income of each household to ensure consistent and fair results. In the Income and Expenditure Survey, the percentage of total household income that comes from labour income is listed and shown in Table 7:

Table 7: Percentage of income from labour by decile, 2011

Decile	1	2	3	4	5	6	7	8	9	10
Percentage of Income from Labour	36.3%	32.3%	39%	45.6%	52.3%	62.7%	70.1%	75.4%	77.2%	76.4%

(Source: Stats SA, 2012)

Using this information to determine the amount of income from labour per household (if each household has an average of 1.5 breadwinners), eligibility for the SS grant can be confirmed or denied. Once this vetting process has been completed, all the houses who qualify will have R3 480 (R290 x 12 months) added to their annual income.

It is important at this point to use the list of each household and its respective income (similarly to the example explained above). The data used in the Income and Expenditure Survey takes the shape of each household's income for the year 2011. R3 480 is then added to each household, whose income from labour is below the threshold of R46 800. Also the top decile is taxed by the mean amount of the changes in the means of each decile brought about by the SS grant. This amount, equal to R14 184.39 per household for the sample population is subtracted from the top decile's mean average income.

The list of yearly income per household (after the additions have taken place) is then ranked from lowest to highest, after which deciles are constructed in the same manner as above (each decile consisting of 2 533 households). The mean income for each decile is calculated and the process of calculating the Gini coefficient continues as previously explained.

Table 8: Household income per decile before and after the Social Solidarity Grant

Decile	1	2	3	4	5	6	7	8	9	10
Original Aggregate Income 2011	4574	12853	18471	25588	33809	45690	65368	101530	179836	485247
Aggregate Income After Social Solidarity Grant 2015	8537	17313	23268	30745	36852	48432	69290	107621	190626	498658

The impact of the Social Solidarity Grant on income distribution as calculated by the Gini Coefficient is shown and discussed in Chapter 5.

4.5 Policy outcome 2: A decrease in unemployment

In line with what Nattrass and Seekings (2001) believe to be the solution to persistently high levels of inequality, this test will determine the effect of an increase in job creation (or a decrease in unemployment) on the level of inequality.

This scenario assumes that a policy is enacted by government that is successful in decreasing unemployment. Again, the 'how' involving the realisation of this 'policy' is not within the scope of this paper. This analysis is merely an illustration of the positive effect that such a change in unemployment may have on inequality.

It is assumed first that the jobs being created are low-paying jobs that pay the current average minimum wage and that this policy is structured in such a way that it caters only for people at the bottom of the distribution, whose household income is below the average

minimum wage. The policy is therefore aimed at creating more income at the bottom of the income.

In 2011, the minimum wage was R2 800 per month (LRS, 2011). South Africa currently experiences an unemployment rate of 25% (LRS, 2011). This scenario assumes that through policy action South Africa's unemployment rate is decreased by 1 percentage point annually over five years, holding all other factors besides inflation constant, so that there is a decrease in unemployment of 5% by the end of 2015.

A 25% unemployment rate equated to 5.4 million unemployed people in South Africa in 2022 (this statistic refers to unemployed people who are seeking work) (LRS, 2011). 5% of 5.4 million is equal to 1 080 000 new jobs over five years, or 216 000 thousand jobs additional jobs per year.

In order to apply this to the sample population, we need to first find the ratio of unemployed citizens in relation to the entire population. If South Africa has a population of 51.58 million people then: 51.58million/1.08million = 47.76 (LRS, 2011). This essentially means that by the above definition of unemployment, for every 47.6 people in South Africa, there is one unemployed person who will become employed in this scenario.

If there are on average 3.75 individuals per household, then the total population of individuals in the 2011 sample is: 3.75 x 25 330 = 99 051.76. Using this figure we can determine the number of additional jobs in the sample population (using the ratio above) as 99 051.76/47.6 = 1 990.19 jobs at the end of the five year period, or 1990.19/5 = 398.04 new minimum-wage paying jobs per annum.

However, due to the targeted nature of this hypothetical scenario, these jobs are only given to those at the bottom of the income distribution. If minimum wage is R33 600 per year (R2 800 x 12), then the part of the sample we are working with includes all households whose income from labour per annum is less than R33 600. For simplicity, the income from the additional jobs will be added to the deciles that have a mean income that is less than the average minimum wage per year. This means that in the sample population given by the Income and Expenditure Survey 2010/11, the additional jobs will be added to the bottom four deciles.

Therefore 398.4 new jobs shared across the 4 deciles means 99.6 additional jobs per decile per year. In the calculations that follow this is rounded to 100 jobs. As there are 2 533 households in each decile then on average there is one additional job per every: 2533/100 = 25 households.

Therefore, in the list of households and their respective income, the annual minimum wage will be added to the income of the 25th household, and every multiple of 25 thereafter (a random even distribution) within the bottom four deciles until the income from 100 new jobs is included. This list of households and their respective incomes will then be ranked from smallest to largest, after which all ten deciles will be reconstructed so that the Gini Coefficient can be calculated. Table 9 gives the impact on income per decile after the creation of these 216 000 low-paying jobs per annum.

Table 9: Household income per decile before and after the creation of 216 000 low-paying jobs per annum

Decile	1	2	3	4	5	6	7	8	9	10
Original Aggregate Income 2011	4574	12853	18471	25588	33809	45690	65368	101530	179836	485247
Aggregate Income After Additional Jobs 2015	8907	23527	35775	49856	65967	85731	115867	171329	295165	781413
Aggregate Income After Additional Jobs (Without Inflation)	7055	18636	28337	39491	52252	67907	91778	135709	233798	618952

The impact of the creation of these jobs on income distribution as calculated by the Gini coefficient is shown in Chapter 5.

4.6 Policy outcome 3: A narrowing of the skills premium

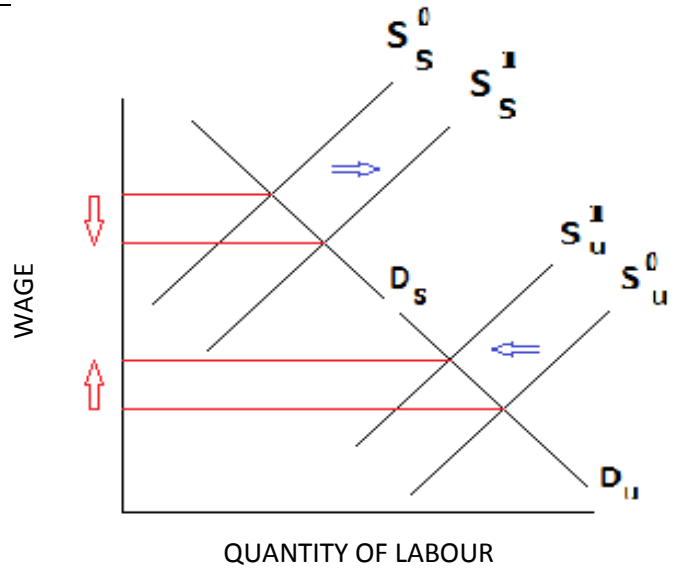
This scenario draws its inspiration from both van der Berg (2010) and evidence in Brazil that suggests that inequality can best be decreased through the narrowing of the skills premium. This scenario therefore proposes to determine the effect that a hypothetical policy action undertaken by government to expand tertiary education will have on levels of inequality.

The scenario assumes that government initiated a ten year plan (using the Income and Expenditure Survey 2010/11) at the beginning of 2008 that aimed to increase the proportion of people who have attained tertiary education by 10% by the year 2020. Again the manner in which this expansion might be achieved is not in the scope of this paper. Therefore, given that it takes a minimum of three years to get a degree, upon the implementation of this policy it is intended that there will be a 1% increase in the proportion of individuals who have tertiary education each year starting from the beginning of 2011 and ending at the beginning of 2020.

Using this annual change in the proportion of tertiary educational attainment, this scenario will determine the extent to which the skills premium narrows – or the extent to which returns at different levels of education change.

Through the price and substitution effects an increase in the supply of skilled labour (here, labour which has achieved tertiary education) results in a decrease in the wage paid to that labour (Barros *et al*, 2010). It is also assumed that the increase in the supply of skilled labour corresponds with a decrease in the supply of unskilled labour. Through the same channels of the price and substitution effects, this results in an increase in the wage paid for unskilled labour (Barros *et al*, 2010).

Figure 6: Illustration of the impact of a change in the skills premium as a result of improved education



The narrowing of the skills premium is illustrated in Figure 6. As the returns to unskilled labour increase, the returns to skilled labour decrease.

Finn *et al* (2015) argue that there is a critical level of education (the level of educational attainment that corresponds to mean log earnings of the population). For any level of education above this level, an increase in returns would be disequalizing while a decrease in returns would be equalizing (Finn *et al*, 2015). For any level of education below this level, an increase in returns would be equalizing while a decrease in returns would be disequalizing (Finn *et al*, 2015).

Therefore, in this scenario the percentage-change in the level of tertiary education will be calculated as a proportion of the original level of tertiary educational attainment. The overall percentage-change for each year, relative to the initial level of tertiary educational attainment in that year, will be used and applied as the change in returns to the different levels of education above and below the critical level. The first five years and the relevant Gini coefficient for each year will be analysed:

2011:
100/101 x 100 = 99.01%
100 - 99.01 = 0.99% decrease/increase in returns above (tertiary)/below (primary) the mean or critical level.

2012:
100/102 x 100 = 98.04&
100 - 98.04 = 1.96% decrease/increase in returns above (tertiary)/below (primary) the mean or critical level.

This process is repeated for 2013, 2014 and 2015. The relative decrease/increase in returns above (tertiary)/below (primary) the mean or critical levels calculated in this way are:

2013: 2.91%
2014: 3.85%
2015: 4.76%

The mean income from labour per household of the sample population is first calculated using the percentage of income from labour per decile (see Table 6) (Stats SA, 2012). This is the critical level. The percentage-change in the proportion of educational attainment per year (as seen above) will be applied to the returns to education above and below this critical level.

To illustrate for 2011: for all labour income above the critical level there will be a decrease in returns of 0.99%, while for all labour income below the critical level there will be an increase in returns of 0.99%. The total income for each household will then be ranked once again and put into deciles to calculate the Gini coefficient.

For 2012, the new mean income will have to be calculated to identify the new critical level. The process explained for 2011 will then be repeated, using the total percentage-change in the proportion of educational attainment up until 2012 of 1.96%. Once again the total income for each household is ranked and then put into deciles so that the Gini coefficient can be calculated. This process is continued, accounting for inflation each year and the impact on household income per decile is shown in table 10.

Table 10: Household income per decile before and after a narrowing of the skills premium

Decile	1	2	3	4	5	6	7	8	9	10
Original Aggregate Income 2011	4574	12853	18471	25588	33809	45690	65368	101530	179836	485247
Aggregate Income After Narrowing of Skill Premium 2015	6084	16999	24664	34494	46006	63100	91174	120272	202730	547669
Aggregate Income After Narrowing of the Skills Premium (Without Inflation)	4819	13465	19536	27322	36441	49981	72218	95267	160581	433805

The impact of the narrowing of the skills premium on income distribution as calculated by the Gini coefficient is shown in Chapter 5.

CHAPTER 5: STATISTICAL RESULTS

5.1 Introduction

The impact on the Gini Coefficients of the household income distributions of the three scenarios outlined in chapter 4 are discussed in this Chapter. The results are analysed and compared to what was expected from the literature.

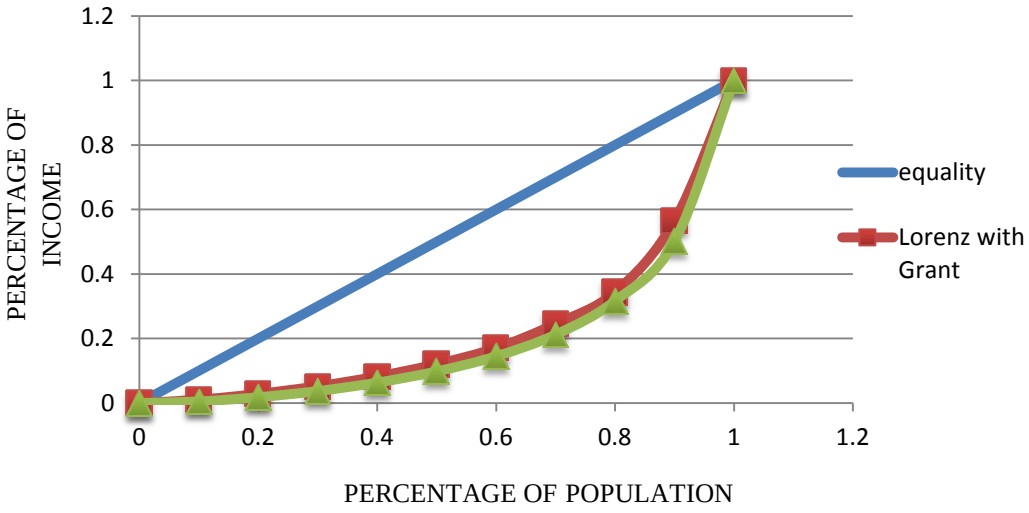
5.2 Policy outcome 1: The Social Solidarity Grant

The results of the impact of the Solidarity Grant on the household income per decile (demonstrated in Table 8) on the Gini coefficient from 2011-15 are shown in Table 11 and Figure 8.

Table 11: Annual Gini Coefficients as a result of the Social Solidarity Grant

Year	**2011**	**2012**	**2013**	**2014**	**2015**
Control Gini	0,6209	0,6209	0,6209	0,6209	0,6209
Social Solidarity Grant Gini	0,5554	0,5554	0,5554	0,5554	0,5554
Total Change	**0,0683**				

Figure 7: Change in the Lorenz Curve by 2015 as a result of the introduction of the Social Solidarity Grant



The results are not surprising and are in line with the literature regarding the effect that transfer payments have on inequality. Given the fact that South Africa has such high levels of both poverty and unemployment, with many people having no income whatsoever, a grant of this nature would be expected to have a very significant initial impact on the levels of inequality. A very large proportion of the sample population - up until the sixth decile - met the requirements of the means testing and so were eligible for the Social Solidarity Grant. This highlights the extent of the severity of both inequality and poverty in South Africa, and it would be expected that the effect on inequality of implementing so broad a grant such as this would be very significant.

On top of this, funding such an endeavour by taxing the top decile of the sample-population serves to reinforce and strengthen the initial impact on inequality of the Social Solidarity Grant.

In line with Bhorat *et al* (2000), the results here show that while an increase in the provision of social grants by government has a very strong initial effect (decreasing the Gini coefficient by roughly 6.5 percentage points in the first year), it has no further effect thereafter (see Table 11). Gumede (2009) also supports the finding that the effect on inequality of giving income to the very poor can be large, because so many of the poor have no income at all.

5.3 Policy outcome 2: Decreasing Unemployment by 5%

Nattrass and Seekings (2001) believe that access to wage employment, or the lack thereof, is the primary driver of persistently high levels of inequality in South Africa. Therefore, following from this train of thought, they believe that job creation must be an important part of any significant changes in inequality.

Decreasing unemployment, or creating jobs, will give income to those at the bottom of the distribution (the people who need it the most). This additional injection of income should make the distribution of income more equal (Nattrass and Seekings, 2001). Nattrass and Seekings (2001) argue that this approach is ideal for South Africa, given that there is such a large amount of the work-force who earn no income at all, with some individuals and households not even receiving income from the government (Stats SA, 2012).

The results of the creation of the impact of low-paying job creation on household income were shown in Table 9. The impact of these changes on the Gini Coefficient are shown in Tables 12 and 13 and Figure 8.

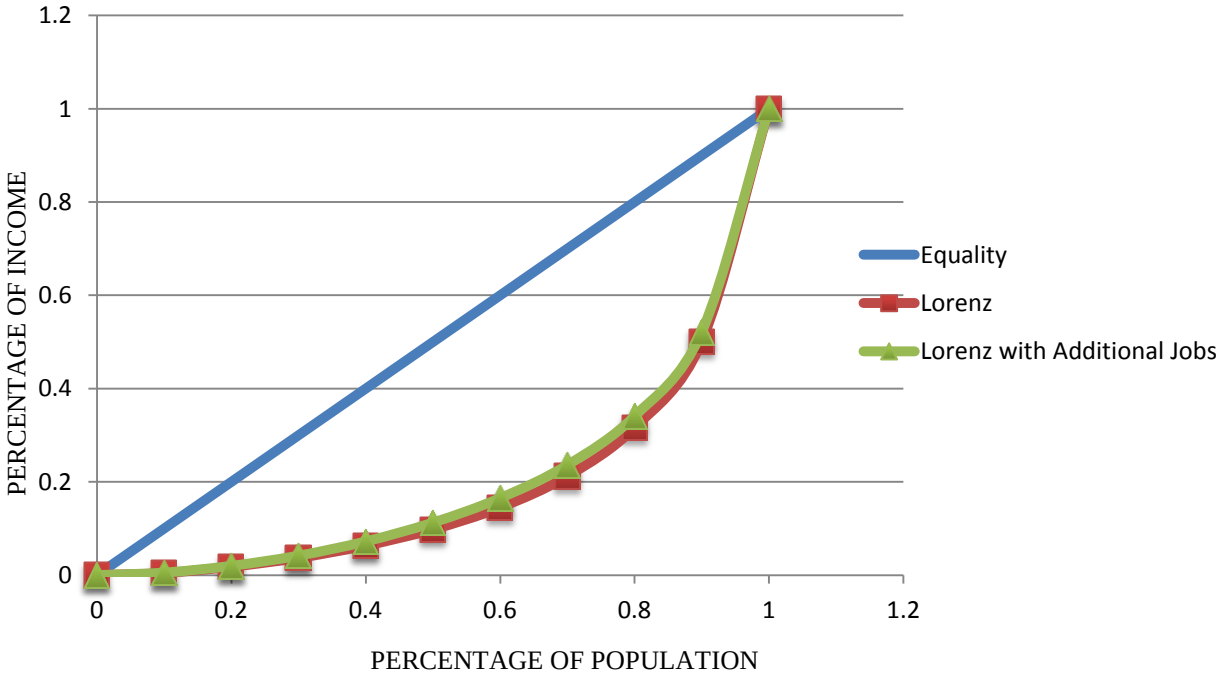
Table 12: The impact of an additional 216 000 jobs per annum on the Gini Coefficient

Year	2011	2012	2013	2014	2015
Control Gini	0,6209	0,6209	0,6209	0,6209	0,6209
Gini with Additional Jobs	0,6165	0,6112	0,6062	0,6014	0,5968
Total Change	**0,02406**				

Table 13: Annual changes in the Gini Coefficient as a result of the creation of an additional 216 000 jobs per annum

Year	2011	2012	2013	2014
Magnitude of Change in Gini Index	0,0044	0,0053	0,0050	0,0048

Figure 8: Change in the Lorenz Curve by 2015 as a result of the creation of jobs



The results of this scenario show that a policy that decreases unemployment by 1% per annum from 2011 until 2015, significantly decreases inequality. The level of inequality measured by the Gini coefficient falls by 2.41 percentage points over the five-year period.

The results are contrary to the beliefs of van der Berg (2012) (discussed in the next section), who argued that low-income job creation will impact more on poverty than inequality. The outcome of the scenario highlights the extent of both inequality and poverty in South Africa. Upon receiving only the minimum wage (R33 600), a household which received no income at all (from labour or government) can find itself moving from the bottom decile of income distribution, all the way to the middle of the distribution - just below the aggregate income for the fifth decile, without taking into account any additional government transfers they may receive on top of their labour income (see Table 6).

Table 12 reveals that increasing job creation year-upon-year, although not immediately matching up to the added provision of government transfers in terms of the magnitude of its effect on inequality, decreases levels of inequality at a fairly constant and consistent rate over time. This aspect of the effect of job creation may give it an advantage over the 'Social Solidarity Grant' as a policy option for combatting inequality. The results suggest that over time job creation would continue to further reduce levels of inequality. It would also be a

more sustainable and manageable option that would have many other positive externalities - one of which might be a diminished reliance on the state for social support, allowing government spending to be directed elsewhere.

What makes this approach so very effective is the fact that there are such high levels of unemployment and poverty in South Africa. The results of the creation of low-income jobs on inequality demonstrates that a policy involving the addition of income has a significant effect on the income distribution, because there is so little income at the bottom of the distribution to start with. As a result, any injection of income causes big movements up along the distribution of income.

5.4 Policy outcome 3: The Narrowing of the Skills Premium

Van der Berg (2010), Woolard *et al* (2009) and Gelb (2003) all argue that the most effective means by which high levels of inequality can be addressed is by the narrowing of the skills premium. The theory behind this is that through an expansion of education (tertiary education in this scenario) the supply of skilled labour can be increased and the supply of unskilled labour decreased. If this happens, then the wage paid for skilled labour will decrease, and the wage paid to unskilled labour will increase. Hence, a narrowing of the skills premium, or a narrowing of the wage differential between skilled and unskilled labour. This all happens through the price and quantity effects elaborated on above. If a narrowing of the skill premium is successful, the theory suggests that there would be a decrease in earnings differentials along the income distribution. In application, as illustrated by this scenario, this would translate into an increase in returns to education below what Finn *et al* (2015) call the critical level, and a decrease in returns to education above the critical level. The results on household income of the narrowing of the skills premium were shown in Table 10. The impact of these changes on the Gini Coefficient are shown in Tables 14 and 15 and Figure 9.

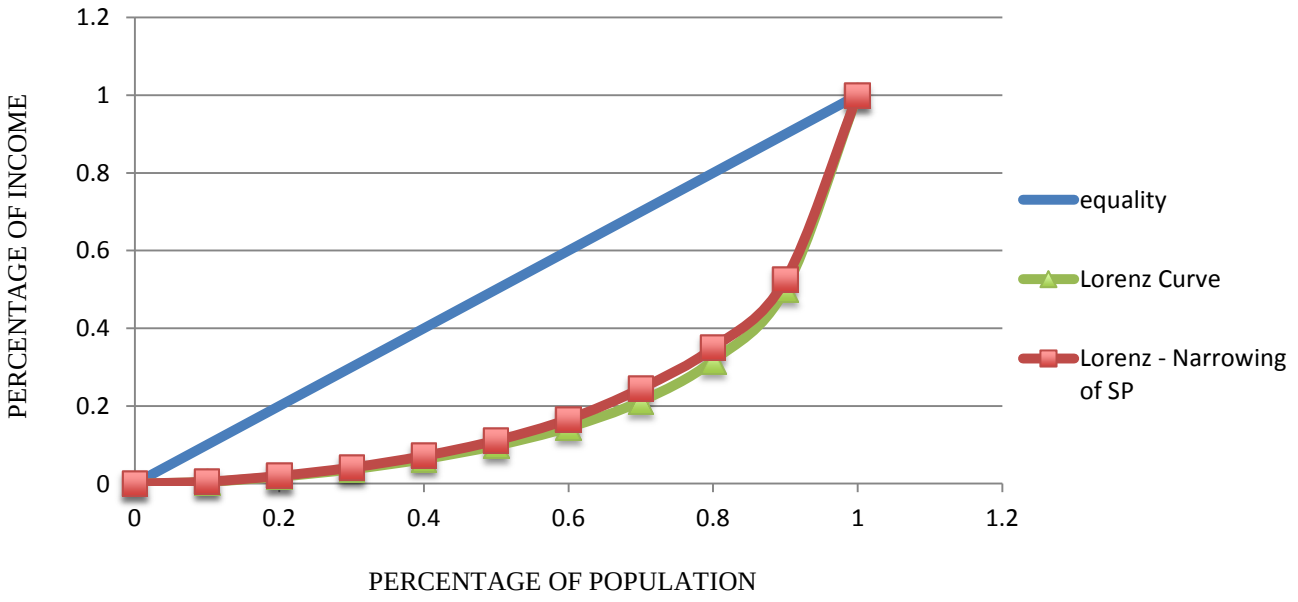
Table 14: The impact of a narrowing of the skills premium on the Gini Coefficient

Year	2011	2012	2013	2014	2015
Percentage Narrowing of the Skill Premium	1,98 %	3,92 %	5,82 %	7,92 %	9,52 %
Control Gini	0,6209	0,6209	0,6209	0,6209	0,6209
Gini with Narrowed Skill Premium	0,6191	0,6154	0,6099	0,6024	0,5931
Total Change in Gini Index	**0,02780**				

Table**:** 15 Annual changes in the Gini Coefficient as a result of a narrowing of the skills premium

Year	2011	2012	2013	2014	2015
Magnitude of Change in Gini Index	0,0018	0,0037	0,0055	0,0074	0,0094

Figure 9: Change in the Lorenz Curve by 2015 as a result of a narrowing of the skills premium



The impact of a narrowing of the skills premium is shown in Table 14 and 15 and Figure 9. The impact is not as significant as Van der Berg (2010) suggested it might be. The results in

Table 14 do, however, confirm his belief that through a narrowing of the skill premium, there can be a significant decline in inequality.

The narrowing of the skills premium has a slightly more significant effect on inequality over the five-year period than the decrease in unemployment in Scenario 2. The narrowing of the skills premium decreased the Gini coefficient by 0.02780 against a decrease of 0.02406 achieved by the job creation scenario (see Table 14 and Table 12).

What works in favour of this approach to combatting inequality is the fact that as time passes, the effect on inequality of a narrowing of the skills premium increases (see Table 15).

This finding makes logical sense. An expansion of tertiary education would happen over time, as the proportion of individuals who have achieved tertiary education will increase year by year. Therefore, through the price and substitution effects the supply of skilled labour and the supply of unskilled labour would continue to increase and decrease respectively year by year at an increasing rate, while both the quantity demanded of skilled labour and unskilled labour increase and decrease respectively. If we assume the closed system of the Classical labour market, while also assuming that the availability of skilled labour is increasing by 1% a year (and the supply of unskilled labour to be decreasing by 1% per year) *ceteris paribus*, the rate of change in returns to education, both below and above the critical level, will be changing at an increased rate.

It must be noted, however, that van der Berg's (2010) assertion that an increase in job creation would not have a significant effect on inequality, is challenged by the results in scenario 2. Although the narrowing of the skill premium is shown to be more effective in its impact on inequality, scenario two demonstrates that job creation should not be overlooked when considering the problem of inequality.

5.5 A comparison of the 3 Policy Outcomes

The outcomes of the 3 scenarios of social security, job creation and a narrowing of the skills premium, as well as the impact of each on the Gini coefficient, are shown in Table 16.

Table 16: The income distributions per decile of the control population as well as each scenario, with the total change in the Gini coefficient for each scenario

Decile	1	2	3	4	5	6	7	8	9	10	Change in Gini
Control (2011)	4574	12853	18471	25588	33809	45690	65368	101530	179836	485247	**0**
Social Solidarity Grant (2015)	8537	17313	23268	30745	36852	48432	69290	107621	190626	498658	**0,0683**
Additional Jobs (2015)	8907	23527	35775	49856	65967	85731	115867	171329	295154	781413	**0,0278**
Narrowing of Skills Premium (2015)	6084	16999	24664	34494	46006	63100	91174	120272	202730	547669	**0,02406**

The cost of implementing the Social Solidarity grant in 2011 works out as follows:
Cost per individual per year of grant = 12 x R290 = R3 480

Bottom four deciles of population = 40% of population of 51,8 million = 20 720 000
Total number of eligible households = 20 720 000/3,75 (mean individuals/household)
= 5 525 333 Eligible households

There are on average 1,5 people who meet the means testing requirements per household, therefore:

Total cost of Social Solidarity Grant = 5 525 333 x 1.5 x R3 480 = **R28 842 238 260**

Total Tax revenue for 2011 was R674 billion (SARS and National Treasury, 2011). Social spending in 2011 made up roughly 60% of total tax revenue, and constituted 3,4% of GDP (National Treasury, 2011). If the social solidarity grant were to be implemented, social spending, as a percentage of GDP, would rise to 4,3%. The implementation of the Social Solidarity grant would require an increase in tax revenue of 4,1%, this revenue would come from taxing the top decile by the full amount required to implement the grant- this amount is 12,4% of total tax revenue from personal income (in 2011) (National Treasury, 2011.).

While the effect of the implementation of this grant is once-off, the results suggest that the effect on inequality is nevertheless significant - more so than the continuous effects of both job creation and the narrowing of the skill premium over the five year period in question. Although this paper does not set out to determine how the three scenarios tested can be achieved, it must be stated that the implementation of such a grant would be an undertaking that may prove difficult due to the fact that the grant would be fully subsidised by the rich through tax increases at the very top of the distribution- which is not something that is done lightly.

In terms of the creation of jobs as a measure of decreasing inequality, South Africa has a very poor record regarding decreasing unemployment. The rate of unemployment has shown little improvement for the decade (see Figure 10), Government policy initiatives such as GEAR, ASGISA and the New Growth Path have done little to create substantial amounts of new jobs. The prospect of a 5% decrease in unemployment as required in scenario 2 would require a dramatic departure from the historical pattern of job creation in South Africa.

Figure 10: South African Unemployment 1994 - 2019

(Source: Business Tech, 2015)

Spending on education in South Africa has historically been one of, if not the largest item in the budget typically sitting around 20% of the budget and 6,4% of GDP (Spaull, 2012). Even though so much money is spent on primary, secondary and tertiary education (with the

majority of the spending being directed to primary and secondary education), the quality of education is still low at the secondary level, where high rates of pupils drop out and are unable to complete their matric certification. Those that do matriculate, for the large part do not qualify for university admittance (Spaull, 2012). Van der Berg *et al* (2011: 4) believes that "low quality education up until grade 11, can be regarded as the root cause for low attainment beyond grade 11".

Therefore, prospects of tertiary education expansion of the kind required in scenario 3 seem unlikely in the current South African context. There does, however, seem to be mounting pressure on government to make tertiary education available to all regardless of their economic status - this has taken shape of the #feesmustfall campaign. It must be noted that the purpose of this study is not to determine how employment can be decreased, or how additional grants can be implemented, or how the skills premium can be narrowed. The purpose of this study is to determine, which of these three approaches, would show the most promise in having a real and significant effect on inequality.

While the Social Solidarity grant achieved the best results in its once-off effect on inequality, it deals with the symptoms of inequality rather than the causes. It does not pave the way for any meaningful change in the distribution of income going forward.

If the problem, as van der Berg (2010) leads us to believe, is the differentials in labour income across the income distribution, then both the addition of low-paying jobs as well as the implementation of a Social Solidarity grant, while having an impact on levels of inequality, will do little to sustainably and consistently decrease inequality going forward.

The narrowing of the skills premium confronts the problem of differentials in labour income directly. As tertiary education expands, the skills premium narrows at an accelerated rate. This approach, if successful, allows people to be responsible for their own livelihood decreasing their reliance on the state (simultaneously freeing state funds, which can be used elsewhere). On top of this, there are other positive associations that go hand in hand with a wider base of educated citizens, such as economic growth and innovation (as more people participate actively in the economy) to name a few- if one ignore its association with inequality, the expansion of education, and its other far reaching consequences, is still something to be strived for.

Thus, while the impact on inequality of scenario 1 is greatest, the impact is once-off. The impact of scenarios 2 and 3 is cumulative and will, over time, exceed that of scenario 1. Scenario 1 also requires hand-outs to the poor by government. This dependency is less empowering and sustainable than outcomes based on job creation and improved skills.

Moreover, it represents simply a redistribution of existing income. Job creation and improved skills would be growth enhancing.

Finally, it should be noted that the greater effectiveness of scenario 1 is partly because it is funded by a tax on the richest decile. Inequality is reduced both because the incomes of the poor rise and incomes of the rich fall. Table 16 shows that the 2015 incomes of virtually all deciles are higher in scenarios 2 and 3 than scenario 1. Only in scenario 3 are the 2015 incomes for deciles 1 and 2 lower than in scenario 1. In terms of improved welfare scenarios 2 and 3 are therefore preferable. Only if one focuses on inequality in isolation is scenario 1 a preferred outcome.

CHAPTER 6: SUMMARY, CONCLUSIONS AND IMPLICATIONS FOR POLICY

6.1 Summary and conclusions

Woolard *et al* (2009) and Bhorat *et al* (2000) both argue that social grants/transfer payments do not actively diminish inequality. Although both Woolard *et al* (2009) and Bhorat *et al* (2000) disregard government transfers as a policy tool with which inequality can be approached, both concede that without social transfers inequality in South Africa today would be much worse than it is. A test done by Bhorat *et al* (2000) shows that without grants the South African Gini coefficient had a value of 0.71, while after the implementation of grants this value came down quite significantly to 0.61.

While there is no doubt therefore that without grants inequality would be much worse, it is however pertinent to note that grants do not actively diminish inequality aside from the once-off effect that accompanies the implementation of a grant. The real usefulness of grants comes in the shape of their impact on levels of poverty, which is substantial (Bhorat *et al*, 2000).

The research undertaken in this study supports the findings of both Woolard *et al* (2009) and Bhorat *et al* (2000). The resultant effect on the Gini coefficient of an increase in the provision of government transfers, in the form of a new 'Social Solidarity Grant' of R300, is initially very substantial. After this initial impact however, there is zero impact on inequality moving forward in the five year period of the scenario. Therefore, this paper corroborates the conclusions of both Woolard *et al* (2009) and Bhorat *et al* (2000) regarding the usefulness of government transfers as a policy tool used to decrease inequality.

On top of the fact that grants provide only a once-off impact, taxing the rich to fund such an endeavour is unlikely to be met with enthusiasm by those in the top decile. This could have a negative effect on the economy.

Continuity and sustainability being the primary concerns with regards to decreasing inequality, rolling out new government transfers year upon year is neither feasible nor sustainable. Therefore, this paper suggests that this approach cannot be used to affect meaningful and sustainable changes in inequality.

Nattrass and Seekings (2001: 54) firmly believe that "access to wage employment is a key determinant of inequality in South Africa". Following from this, if more access can be given to the poor through the creation of jobs, there will be a positive change in income

distribution. Conversely, van der Berg (2010) holds that it is not the level of employment, but rather the differentials in the wages of those who are employed, that defines inequality.

Labour income inequality takes the form of the skills premium, which is defined as the relative difference in earnings between those with primary/secondary education and those with tertiary education (van der Berg, 2010). Therefore, inequality of educational attainment is translated into inequality of labour income, which in turn defines total income inequality (van der Berg, 2010). Van der Berg (2010) therefore believes that the only way in which inequality can be significantly decreased is by expanding education, thereby increasing the supply of skilled labour. Through the processes already described, this will decrease the skills premium and decrease inequality resultantly (van der Berg, 2010).

The results of the third scenario presented in this study support van der Berg's (2010) position with regards to the effectiveness that the narrowing of the skill premium in bringing about a decline in the Gini coefficient.

However, scenario 2 contradicts van der Berg's (2010) belief that job creation is not an effective means of decreasing inequality. It supports Nattrass and Seekings' (2001) belief that job creation may be an effective measure for decreasing inequality. The only distinguishing feature between the two approaches that favours the narrowing of the skill premium as an area with greater promise, is that with narrowing of the skills premium inequality decreases at an increasing rate. This makes this approach preferable as it promises the possibility of sustainable, significant and accelerating deterioration of inequality over time.

Van der Berg's (2010) belief that increasing employment at the bottom of the income distribution will not be effective in significantly affecting persistently high levels of inequality in a sustainable way seems logical. The end-goal of a more equal society should be to have diminished wage differentials. Creating more jobs at the bottom of the income distribution of an already very unequal country will have a significant effect on unemployment but perpetuates inequality in the labour market.

The question therefore is why decreasing unemployment was successful in reducing inequality in scenario 2. Finn (2015) would argue that the reason for this is contextual. In a country with exceptionally high levels of inequality, unemployment and poverty, it does make sense that job creation would have a significant impact on inequality. This is due to the fact that the levels of poverty, inequality and unemployment are so extreme - with many people currently earning nothing from labour income. To illustrate this, in the Income and Expenditure Survey for South Africa 2010/11 (Stats SA, 2012), the top decile earns over 43%

of the sample-population's income, while the bottom decile earns only 1%. The tiny share of the bottom decile is so low because so many households earn no labour income at all.

It must be noted that Brazil has significantly lower levels of unemployment than South Africa (Finn, 2015). In light of this, it is unsurprising that an approach involving the narrowing of the skills premium shows greater returns in Brazil. Because more people have jobs, there are more people to experience both the relative increases and decreases in returns to education as the skill premium narrows, making this approach more effective. Once again we are reminded of the importance of context in approaching the problem of inequality.

Given that the sample-population used is very small, the full extent of the problems of inequality, poverty and unemployment cannot be fully captured in scenarios such as those used in this study. It is possible that the skills premium in South Africa would not be narrowed as easily as demonstrated in the third scenario, or as empirically observed in Brazil. With so many unemployed individuals at the unskilled level in South Africa (in contrast to Brazil's much lower unemployment rate), a decrease in the supply of unskilled labour may not lead to a rise in unskilled wages as swiftly as is assumed. Likewise, a rise in the supply of skilled labour where skills are in short supply may not initially reduce the skilled wage premium. The narrowing of the skills premium will therefore take much longer than demonstrated in the third hypothetical scenario. There are, however, other reasons that there might be an increase in the wage paid to unskilled labour, such as rising minimum wages for example.

6.2 Implications for policy

Given, then, South Africa's high levels of inequality, poverty and unemployment, Nattrass and Seekings' (2001) proposition that job creation should take centre-stage in the battle against inequality is very much worth considering. In fact, it is worth conceptualising and researching the plausibility of a combination of education expansion (both in terms of availability and quality) to effect a narrowing of the skills premium in conjunction with policy aimed at significantly decreasing unemployment. Seemingly, the combination of these two approaches would be self-reinforcing and could have extremely promising results.

It must be stressed again that this paper set out to determine what possible approaches could be taken to combat persistently high levels of inequality in South Africa. The purpose has been to highlight possible policy actions that deserve further attention and research, and to determine which of these policy actions show greater promise in their ability to bring about

a decline inequality. The question of "how" these policy actions can be achieved or implemented is not in the scope of this study. It merely illustrates the outcomes that such hypothetical policies may have.

What has been established, is that there are no easy answers regarding efforts to decrease inequality. It can be concluded that implementing the provision of additional transfer payments will have a significant initial effect on inequality; this effect however is once-off and costly. This fact along with possible economic consequences from taxing the rich to the extent that is required, and the fact that it is not sustainable to continue increasing the provision of transfer payments, make this approach unfavourable. In addition, it does not address the core problem or root cause behind inequality and promotes a culture of reliance on the state. One could refer to this approach as "kicking the can down the road". While simpler to implement, it does not address the underlying causes of very high inequality in South Africa.

Although both job creation and the narrowing of the skills premium were found to be significantly effective in decreasing inequality (with the narrowing of the skills premium demonstrating decreases in inequality at an increasing rate over time), due to high levels of unemployment, poverty and inequality in South Africa the narrowing of the skills premium may not initially be as effective in reality as the scenarios suggest.

High levels of poverty and unemployment may favour a policy encouraging job creation as an effective approach to decreasing inequality because of its many possible positive externalities. A narrowing of the skills premium through education addresses the root cause of inequality: wage differentials in the labour market. On top of this, it allows for an accelerating reconstruction of the income distribution. Therefore, it is an approach to reducing inequality that has a lot of potential and needs more attention.

A dual approach of both job creation as well as a narrowing of the skill premium may be mutually reinforcing. If there are more people with jobs, changes in returns on skills will be more extensive.

REFERENCES

BARROS, R. DE CARVALHO, M. FRANCO, S. MEDONCA, R. (2009). Markets, the State and Dynamics of Inequality: Brazil's Case Study. [Online]. Available: http://www.revistahumanum.org/revista/wp-content/uploads/2012/02/14_RPPLAC_ID.pdf. [Accessed 20 June 2015]

BEKKER, D. (1995). Weitzman's Profit Sharing Model: A Resurrection of Pre-Keynesian Theory? [Online]. Available: http://onlinelibrary.wiley.com/doi/10.1111/j.1813-6982.1995.tb01246.x/abstract [Accessed 10th August 2015].

BERGOLO, M. CARBAJAL, F. CRUCES, G. LUSTIG, N. (2011). Impacto de las Trasnferencias Publicas la Decada de 2000: la Experienca de los Paises Del Cono Sur. Mimeo. CEDLAS, National University of La Plata, Argentina.

BHORAT, H. VD WESTHUIZEN, C. TOUGHEDAH, J. (2009). Income and Non-Income Inequality in Post-Apartheid South Africa: What are the Drivers and Possible Policy Interventions? [Online]. Available: http://www.cilt.uct.ac.za/sites/default/files/image_tool/images/36/DPRU%20PB%2010-26.pdf [Accessed 3 June 2015].

BHORAT, H. LEIBBRANDT, M. MAZIYA, M. VAN DER BERG, S. WOOLARD, I. (2000). Labour Markets and the Challenge of Poverty and Inequality in South Africa. DPRU/GTZ. 2000

BLOM, A. VELEZ, EV. (2001). Brazil's Increasing Skill Premium: Growing Demand and Insufficient Supply? [Online]. Available: http://web.worldbank.org/archive/website00955A/WEB/PDF/BR_SKILL.PDF. [Accessed 5th September 2015]

BOURGUIGNON, F. (2003). The Poverty-Growth-Inequality Triangle. [Online]. Available: http://siteresources.worldbank.org/INTPGI/Resources/342674-1206111890151/15185_ICRIER_paper-final.pdf [Accessed 29th May 2015].

BUSINESS TECH. (2015). Unemployment in South Africa: 1994 – 2015. [Online]. Available: http://businesstech.co.za/news/international/77737/south-africa-unemployment-1994-2015/. [Accessed 25th September 2015].

CRUCES, G. GARCIA-DOMENECH, C. GASPARINI, L. (2011). Inequality in Education: Evidence for Latin America. UNU-WIDER, Working Paper No. 2011/93

DERCON, S. (2003). The Microeconomics of Poverty and Inequality: The Equity-Efficiency Trade-Off Revisited. [Online]. Available: http://www.afd.fr/jahia/webdav/site/afd/shared/PUBLICATIONS/RECHERCHE/Archives/Notes-et-documents/10-notes-documents.pdf#page=124. [Accessed 21st May 2015].

EDWARDS, L. (1999). Trade Liberalisation, Structural Change and Occupational Employment in South Africa. Trade and Industrial Policy Secretariat Annual Forum Paper, September 1999.

FARRIS, FA. (2010). The Gini Index and Measures of Inequality. [Online]. Available: http://math.scu.edu/~ffarris/MonthlyFinal.pdf. [Accessed 5th May 2015].

FINN, A. LEIBRANDT, M. LAM, D. (2015). Schooling Inequality, Returns to Schooling, and Earnings Inequality: Evidence from Brazil and South Africa. [Online]. Available: http://econpapers.repec.org/paper/unuwpaper/wp2015-050.htm. [Accessed 3rd September 2015].

GALE, W. KEARNEY, M. ORSZAG, P. (2015). Would a significant increase in the top income tax rate substantially alter income inequality? [Online]. Available: http://www.brookings.edu/research/papers/2015/09/28-increase-in-top-income-tax-rate-not-substantially-alter-income-inequality-gale-kearney-orszag. [Accessed 10th September 2015].

GASPARINI, L. CRUCES, G. (2010). A Distribution in Motion: the Case of Argentina. IN L.F. Lopez-Calva & N. Lustig (Eds.), *Declining Inequality in Latin America: A Decade of Progress?* (Chapter 5). Washington DC: Brookings Institution and UNDP.

GELB, S. (2003). Inequality in South Africa: Nature, Causes and Responses. [Online]. Available: http://www.tips.org.za/files/Gelb_Inequality_in_SouthAfrica.pdf [Accessed 1 June 2015].

GUMEDE, V. (2009). Poverty in South Africa: Governments Attempts to Include the Excluded in Designing Policies and Programmes at Reducing Poverty. [Online]. Available: http://www.ijr.org.za/publications/pdfs/IJR_TA_Chapter4.pdf. [Accessed 2 June 2015.]

HALL, K. (2015). Income and Social Grants. [Online]. Available: http://www.childrencount.ci.org.za/indicator.php?id=2&indicator=10. [Accessed: 10 August 2015]

HIGGINS, M, WILLIAMSON, JG. (1999). Explaining Inequality the World Round: Cohort Size, Kuznets Curves, and Openness. [Online]. Available: http://www.nber.org/papers/w7224[Accessed 26th May 2015].

HOMBURG, S. (2014). Critical Remarks on Piketty's 'Capital in the Twenty-First Century. [Online]. Available: http://diskussionspapiere.wiwi.uni-hannover.de/pdf_bib/dp-530.pdf. [Accessed 20th May 2015].

KALDOR, N. (1956). Alternative Theories of Distribution. The Review of Economic Studies. 23 (2): 83 – 100.

KANBUR, R. (2011). Does Kuznets Still Matter? [Online]. Available: http://kanbur.dyson.cornell.edu/papers/DoesKuznetsStillMatter.pdf. [Accessed 25th May 2015].

KUZNETS, S. (1955). Economic Growth and Income inequality. American Economic Review. 45 (1): 1 – 28.

LABOUR RESEARCH SERVICE. (2011). Bargaining Indicators. [Online]. Available: http://www.lrs.org.za/docs/Bargaining%20Indicators%20for%202011.pdf. [Accessed 20th September 2015].

LANGONI, C. G. Distribuição de Renda e Desenvolvimento Econômico no Brasil. 3ª edição, Rio de Janeiro, Editora FGV, 2005.

LEWIS, JD. (2001). Policies to promote growth and employment in South Africa. World Bank informal discussion papers on aspects of the South African economy vol 16.

LEIBBRANDT, M. BHORAT, H. WOOLARD, I. (1999). Understanding Contemporary Household Inequality in South Africa. [Online]. Available: https://open.uct.ac.za/bitstream/handle/11427/7246/DPRU_WP99-025.pdf?sequence=1. [Accessed 2 June 2015].

LUSTIG, N. LOPEZ-CALVA, LF. ORTIZ-JUAREZ, E. (2012). Declining Inequality in Latin America in the 2000's: The Cases of Argentina, Brazil, and Mexico. [Online]. Available: http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6248. [Accessed 1 August 2015].

MARNIESSE, S, PECCOUD, R. (2003). Poverty, Inequality and Growth, What's at Stake for Developmental Aid? [Online]. Available: http://www.afd.fr/webdav/site/afd/shared/PUBLICATIONS/RECHERCHE/Archives/Notes-et-documents/10-notes-documents.pdf. [Accessed 29th May 2015].

MØLLER, V. (1998). Quality of Life in South Africa: Post-Apartheid Trends. [Online]. Available: http://link.springer.com/article/10.1023/A:1006828608870. [Accessed: 2 June 2015].

NATIONAL TREASURY. (2011). Social Security and the Social Wage. [Online]. Available: http://www.treasury.gov.za/documents/national%20budget/2013/review/chapter%206.pdf [Accessed 10th September 2015].

NATIONAL TREASURY AND SARS. (2011). 2011 Tax Statistics. [Online]. Available: http://www.treasury.gov.za/publications/tax%20statistics/2011/2011%20Tax%20Statistics.pdf [Accessed 10th September 2015].

NATRASS, N. (2011). The New Growth Path: Game-changing Vision or Cop out? [Online]. Available: http://www.sajs.co.za/sites/default/files/publications/pdf/638-4480-3-PB.pdf [Accessed 3 June 2015].

NATRASS, N. SEEKINGS, J. (2001). Two Nations: Race and Inequality in South Africa Today. [Online]. Available: http://www.jstor.org/stable/20027679?seq=1#page_scan_tab_contents. [Accessed 3 June 2015].

PIKETTY, T. (2014). Capital in the Twenty-First Century. Harvard University Press

RAVALLION, M. (2001). Growth Inequality and Poverty: Looking Beyond Averages. World Development. 29 (11): 1803 - 1815.

SUMMERS, LH. (2014). The Inequality Puzzle. [Online]. Available: http://piketty.pse.ens.fr/files/capital21c/en/media/Summers_Democracy.pdf [Accessed: 20th May 2015].

SOARES, S. OSORIO, RG. SOARES, FV. MEDEIROS, M. ZEPEDA, E. Conditional Cash Transfers in Brazil, Chile and Mexico: Impacts upon Inequality. [Online]. Available: http://www.ipc-undp.org/pub/IPCWorkingPaper35.pdf [Accessed 30 June 2015].

SPAULL, N. (2012). Education in South Africa: A tale of Two Systems. [Online]. Available: http://www.politicsweb.co.za/news-and-analysis/education-in-sa-a-tale-of-two-systems [Accessed 20th September 2015].

STATS SA. (2012). Income and Expenditure Survey 2010/11. [Online]. Available: http://www.statssa.gov.za/publications/P0100/P01002011.pdf. [Accessed 20th September 2015].

VAN DER BERG, S. (2010). Income Inequality in South Africa. [Online]. Available: www.ekon.sun.ac.za/wpapers/**2010**/wp22**2010**/wp-22-**2010**.pdf. [Accessed: 5th March 2015]

VAN DER BERG, S., BURGER, C., BURGER, R., DE VOS, M., DU RAND, G., GUSTAFSSON, M., SHEPHERD, D., SPAULL, N., TAYLOR, S., VAN BROEKHUIZEN,

H., AND VON FINTEL, D. (2011). Low quality education as a poverty trap. Stellenbosch: University of Stellenbosch, Department of Economics. Research report for the PSPPD project for Presidency

WOOLARD, I. LEIBRANDT, M. MCEWEN, H. (2009). The Persistence of High Income Inequality in South Africa: Some Recent Evidence. [Online]. Available: http://www.ijr.org.za/publications/pdfs/IJR_TA_Chapter4.pdf. [Accessed 2 June 2015].

WORLD BANK. (2014). The Most Unequal Countries in the World. [Online]. Available: http://www.businessinsider.com/gini-index-income-inequality-world-map-2014-11 [Accessed 19th May 2015].

WORLD BANK. (2014). South African Economic Update: Fiscal Policy and Redistribution in an Unequal Society. [Online]. Available: http://www.worldbank.org/en/country/southafrica/publication/south-africa-economic-update-fiscal-policy-redistribution-unequal-society [Accessed 12th August 2015].

WORLD BANK. (2014). Gini Index (World Bank Estimates). [Online]. Available: http://data.worldbank.org/indicator/SI.POV.GINI [Accessed: 12th March 2015]