UNIVERSITY OF KWAZULU-NATAL

AN ASSESSMENT OF SOCIAL DIVERSITY AND ECONOMIC OUTCOMES: THE MEASUREMENT OF SOCIAL FRACTIONALISATION IN SOUTH AFRICA

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DECLARATION

I Sian Camilla Mc Arthur declare that

(i)   The research reported in this dissertation/thesis, except where otherwise indicated, is my original research.

(ii)   This dissertation/thesis has not been submitted for any degree or examination at any other university.

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ABSTRACT

Measuring social fractionalisation is a means of assessing how diverse a given society is, with the term fractionalisation often used interchangeably with diversity. The available literature reveals that understanding the nature and degree of social fractionalisation is important in devising policies to improve economic growth, due to the fact that diversity is said to impact significantly on economic outcomes. Poor economic growth, in Sub-Saharan Africa in particular, has been associated with poor education, political instability, high government deficits and insufficient infrastructure to support growth (Easterly and Levine, 1997). High levels of ethnic fractionalisation are said to be able to explain a significant part of most of these characteristics. In the broader international literature diversity is also believed to have possible impacts on democracy, communication between groups, and government expenditure decisions. These in turn, are also found to impact on economic growth. It is therefore important to gain an understanding of diversity and how it relates to the broad array of economic factors which in turn affect economic growth. Thus far there has been no within-country analysis done in South Africa using the broad array of fractionalisation measures available in the literature. This dissertation utilizes this array of measures to highlight the nature and extent of diversity in South Africa, and how it has changed over time. Nationally representative data sources including the Project for Statistics on Living Standards and Development from 1993, the Afrobarometer in South Africa from 2004 and 2008, and the National Income Dynamics Study from 2008, also provide significant insight into the state of public policy in South Africa which is useful to assess, at a descriptive level, the effects of diversity.

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CHAPTER ONE: INTRODUCTION

Fractionalisation is the term used to explain the degree to which something is divided up into parts. In an economic context, social fractionalisation generally refers to the degree to which society is fragmented or diverse. Empirical research has shown a number of mechanisms through which the degree of fractionalisation impacts economic growth. It is therefore important to gain an understanding of the nature of this diversity, and how it relates to the broad array of economic factors which in turn affect economic growth. This dissertation aims to investigate the extent of social fractionalisation in South Africa, and to explore the links between diversity and economic outcomes.

Fractionalisation can be measured across a broad range of dimensions, including race, religion, language and income. Measuring social fractionalisation is therefore a means of calculating how diverse a given society is, and as a result the terms diversity and fractionalisation are often used interchangeably. The available literature reveals that understanding the nature and degree of social fractionalisation is important in devising policies to improve economic growth prospects, especially in diverse economies. In particular, cultural or ethnic fractionalisation – a specific subcategory of social diversity – has been used in a variety of literature on the diversity-growth relationship since the 1990s.[1] More recently, the impact on economic growth of other measures of diversity, based on individuals' economic standing, or the culmination of various cultural attributes and the diversity of beliefs or value systems, have also been explored.[2]

There are a number of mechanisms through which diversity may affect growth. In Sub-Saharan Africa, high levels of ethnic fractionalisation have been found to significantly contribute to political instability, high and unsustainable government deficits, poor provision of infrastructure and public goods such as education, as well as poorly developed financial systems, and distortions in foreign exchange markets, which tend to be negatively associated with economic growth (Easterly and Levine, 1997). In the broader international literature, diversity is also believed to affect democracy, communication between groups, and government expenditure decisions, particularly with respect to development expenditures. These in turn, are also found to impact on economic growth.[3]

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[1] See, for example, Alesina *et al*, 1999; Alesina *et* al, 2003; Easterly and Levine, 1997, and Knack and Keefer, 1997.

[2] See, for example, Baldwin and Huber, 2010; Fukumi, 2004; Okediji, 2011; Okediji, 2008; Montalvo and Reynal-Querol, 2005; and Weesner, 2011.

[3] See, for example, Annett, 2001; Barro, 1996; Habyarimana, 2007; Knack and Keefer, 1997; and Ratna et al. 2009.

The overall objective of this dissertation is to make an empirical contribution to the understanding of the nature and extent of diversity in South Africa, and to determine what insights this understanding can provide into the current state of public policies and economic growth. The dissertation addresses the following four specific aims:

1. How does diversity in society impact on the economy, particularly in terms of the theoretical linkages between diversity and economic outcomes?

2. What methods have previously been used to measure social diversity in South Africa as well as in the international literature, and what do such studies reveal about the empirical relationship between the various measures of diversity and economic outcomes?

3. Using nationally-representative data sources, what is the extent of social diversity in South Africa? How does the extent of measured diversity differ depending on what index is used, and how has diversity changed over time?

4. What does the estimated degree of fractionalisation in South Africa suggest in terms of economic outcomes? How might the measures of fractionalisation estimated here be included in future empirical analyses on the impact of fractionalisation on economic growth prospects?

The measures of diversity used in the early literature in this field have several drawbacks, both in terms of their measurement and their interpretation. As a result, researchers have developed new indices in order to better account for social fractionalisation, which will be incorporated into this study. In addition, most existing studies use fairly out-of-date data, making the poor assumption that ethnic characteristics in a given country remain relatively constant across time.[4] Therefore, this study's estimation of fractionalisation based on recent, individual-level data across a number of data sources at different points in time, is a useful contribution. It must be noted, however, that changes in social fractionalisation over time are not something that have been considered significantly in the literature to date. There is research in the more recent literature which finds that the relationship between static fractionalisation and long-run growth is not robust, whereas the inclusion of dynamic fractionalisation is found to be robustly related to negative economic growth prospects (Campos *et al.*, 2009).

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[4] For example, Easterly and Levine (1997) and Alesina *et al.* (2003) make use of an Ethnolinguistic Fractionalisation measure based on the well-known data from the Atlas Narodov Mira (1964) to test the relationship between diversity (at a point in time) and long-run economic growth, assuming that diversity is time-invariant.

Generally, empirical studies into the relationship between fractionalisation and economic outcomes such as economic growth are divided into three stages. The first stage identifies the significant determinants of economic growth in a particular economic context. The second stage involves measuring the degree of social diversity, often drawing on previously calculated measures of diversity such as the fractionalisation indices from Alesina *et al.* (2003). The third stage utilises econometric modelling to assess the empirical impact of this fractionalisation on particular determinants of economic growth, such as educational attainment or infrastructure development. This dissertation will focus primarily on reaching the second stage of the research process, and will therefore consist of a combination of a comprehensive survey of the available literature – both theoretical and empirical – together with the estimation of various diversity indices using South African data. The empirical linking of the degree of fractionalisation in society to economic growth, and testing of which measure most accurately reflects the nature of diversity in South Africa, will be left to later studies.

The first specific aim will be addressed in Chapter Two by conducting a comprehensive survey of the available literature. First, understanding the meaning of culture and ethnicity as a proxy for culture will provide grounding to understand the importance of what the various diversity measures attempt to capture. Following this, the various mechanisms through which diversity may impact economic growth will be discussed. This will involve examining the various economic factors and public policy considerations that are influenced by diversity, which ultimately have an effect on prospects for economic growth.

Having provided the insight into how, theoretically, diversity might impact economic growth, Chapter Three will examine the ways in which diversity is measured, and consider the empirical work done on the relationship between diversity and economic performance. The different measures of fractionalisation used in the international literature will be discussed, including the rationales behind each measure. These measures include the Ethnolinguistic Fractionalisation index and the Social Diversity index, Between-Group Inequality index and Ethnic Polarisation. Secondly, this chapter will discuss the relative importance and significance of the measures used to account for diversity, in terms of the robustness of the tested empirical relationships. The empirical literature review will also highlight the methods that have been employed in previous South African empirical research, and what they reveal about the degree of social fractionalisation. Lastly, this chapter will outline various policy decisions that have been made in South Africa which should help to curb the potential negative impacts of diversity.

Chapter Four will outline the selection of the four data sources utilised in the dissertation, namely, the Project for Statistics on Living Standards and Development (PSLSD) from 1993, the National Income Dynamics Study (NIDS) from 2008, and Afrobarometer survey data from 2004 and 2008. In addition, this chapter will examine the various cultural attributes available in these datasets, including race, language and religion, at a descriptive level in order to more fully understand what attributes are being built into the various diversity measures.

Chapter Five will then proceed to calculate the various diversity measures in order to assess what they indicate about the level of diversity in South Africa, as well as what changes in diversity occur over time. This chapter provides the main analytical work of the dissertation, and addresses the third and fourth specific aims. In addition to measuring diversity, Chapter Five will examine descriptive statistics that give insight into the extent of trust, public goods provision, and access to basic necessities – areas that are commonly impacted by diversity in society. This will provide insight, at least at a descriptive level, into whether diversity is impacting economic outcomes in South Africa, as well as whether the public policy decisions outlined in Chapter Three have been successfully implemented. These additional statistics will give further indications of the extent or severity of diversity in South Africa.

Finally, Chapter Six summarises the key findings of each of the aforementioned chapters, and outlines policy considerations that could be drawn from the findings of this research, as well as offering suggestions as to how the effects might be tested empirically in future research.

CHAPTER TWO: THE THEORETICAL RELATIONSHIP BETWEEN CULTURAL DIVERSITY AND ECONOMIC GROWTH

The degree of social fragmentation in a society has been linked empirically to a range of economic outcomes.[5] However, in order to begin to assess the causality of such links, it is necessary first to understand the theoretical mechanisms through which diversity impacts on economic growth. The key objective of this chapter is thus to review the theoretical literature regarding the relationship between cultural diversity and economic growth. Gaining an understanding of what culture is, and the theoretical relationship between cultural diversity and growth, is necessary in order to critically assess the various empirical measures of diversity and to further understand the nature and impact of diversity in the South African economic context. The empirical aspects will be addressed in later chapters, but this chapter focuses on the theoretical frameworks.

The key objective of this chapter will be achieved, firstly, by reviewing the definitions of culture and cultural groupings in section 2.1, in order to gain some insight into how one might go about measuring or quantifying aspects of culture in a society. The literature explaining the theoretical mechanisms through which diversity influences economic growth prospects will be reviewed in section 2.2. Low levels of education and investment, high levels of political instability, and generally poor government decision-making are often provided as explanations for why some countries grow more slowly than others.[6] Social diversity contributes towards all of these factors which slow down economic growth. That is, rather than diversity having a direct effect on growth, the mechanism operates indirectly through its impact on the underlying determinants of economic growth, such as political instability or government decision making. Finally, section 2.3 concludes the chapter.

2.1 The Meaning of Culture

Culture generally refers to the system of norms and standards developed within a society over many generations, which significantly influences the everyday behaviour of the people that live in that society (Egede, 2006). Culture can be defined most simply as "the learned and shared behaviour of a community of interacting human beings" (Useem and Useem, 1963: 169).

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[5] See, for example, Baldwin and Huber, 2010; Fukumi, 2004; Alesina *et al*, 1999; Alesina *et* al, 2003; Annet, 2001; Easterly and Levine, 1997; Okediji, 2011; Okediji, 2008; and Montalvo and Reynal-Querol, 2005.

[6] See, for example, Easterly and Levine, 1997; Montalvo and Reynal-Querol, 2005; and Fedderke *et al.* 2008.

Cultural attributes are often embodied in race, ethnicity, language and religion, and include the norms, actions, customs, values and beliefs that society deems acceptable (Egede, 2006). In many ways the attitudes and aspirations of individuals in society are said to be set out by the culture of that society. Cultural diversity can be conceptualised either in terms of fractionalisation, or in terms of polarisation. The former simply refers to the degree to which a society is made up of some number of different groups or fractions, whereas the latter refers to the extent to which a society is divided into two extreme antagonistic groups (Montalvo and Reynal-Querol, 2000). Theoretically, while fractionalisation attempts only to account for the number of groups in society, polarisation attempts also to account for the 'distance' or depths of social cleavages between groups (Montalvo and Reynal-Querol, 2000).[7] When assessing different cultures, and the degree of diversity in a society, there is a need to classify people into groups or categories that are believed to be significantly different from other groups (O'Neil, 2006a). It is important to understand what factors play a role in determining such cultural groupings, as well as which aspects of culture are important or relevant in a particular field of study. Since this dissertation is written from an economic perspective, it is concerned with the major cultural characteristics that groups use to distinguish themselves from other groups in society, the cultural factors which create tension or conflict between groups, as well as factors which impact on the ability and willingness of groups to interact with one another.

Classifications of cultural groupings are usually done according to what is referred to as ethnicity. Ethnicity denotes sociological features that are, in a sense, 'inherited', either genetically or through upbringing, such as culture, ancestry, nationality and language (Bhopal, 2004). Consequently, it seems that ethnicity would be an acceptable proxy for culture in empirical research. However, one problem that arises in empirical research is the use of race to account for ethnicity, although it may not be a sufficient predictor of culture, as knowing ones race does not necessarily reliably predict their attitudes or beliefs (Desmet *et al.* 2015) Egede, 2006). Consider the case where a child of one race was adopted by a family of another race at a very young age. This child would share the same language, cultural beliefs and values of its adopted parents, despite the fact that they are from different race groups - highlighting how ineffective race can be as a proxy for ethnicity, and therefore of culture (O'Neil, 2006b). Alternative proxies that can be used for ethnicity, besides race, include religion and language, which are learned and inherited cultural attributes that distinguish groups from each other, and are to some extent learned, and govern the way in which individuals in society relate to one another. Overall though, none of these proxies fully capture the behaviours, norms, attitudes and beliefs of individuals in society.

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[7] Issues relating to the measurement of fractionalisation and polarisation will be discussed further in Chapter Three section 3.1.

Some researchers have highlighted the importance of allowing individuals to self-identify their ethnic group, rather than simply providing a number of predefined options to select from (Fearon, 2002). This is because in some cases it may force individuals to select a group which does not entirely match their identity (Jackson, 2007; Fearon, 2002). Assuming that any measurement error thus generated is not related to factors which may impact on economic growth, the measured impact of ethnic diversity on growth will tend to be biased downwards, understating the effects of diversity (Jackson, 2007). This problem is likely to be less significant in Africa due to the historical prevalence of using ethnicity as a tool for colonial rule (Jackson, 2007). More specifically in South Africa, in light of the apartheid history along with a high degree of ethnic awareness and division, it can be expected that ethnic identity is relatively easily identified and accurately measured.

Although ethnicity does capture some aspects of culture, there are other important aspects which it does not necessarily fully capture such as social class, work ethic or value system which might also arguably impact on social capital and preferences (Desmet *et al.* 2015; Weesner, 2011). Furthermore, it is debatable whether people who belong to different religious or linguistic groups are necessarily culturally different, or conversely whether people who belong to the same ethnic group are culturally homogeneous. Instead, it might be worth considering measures other than just the observable characteristics of ethnicity, race, religion or language to account for culture. Other factors that are important in the development of culture include education, income, social capital, and institutional frameworks.[8] These relate strongly to the development of behaviours in society, instilling values and norms relating to human interaction.

Undoubtedly, given the definition of culture itself, it is clear that education is likely to have an impact on the learned behaviours of an individual. The schooling environment is typically organised to reflect the ideals and values of the greater society, and furthermore, the nature of education not only reflects the current state of culture, but also instils, reinforces and develops that culture for future generations (Egede, 2006). Culture is therefore thought to be transmitted to successive generations through education, although not necessarily strictly in the sense of formal schooling, particularly in societies where schooling levels are particularly low yet the sense of culture and identifying with a particular group may be quite salient. Furthermore, education is likely to affect the extent of social capital, such as the degree of trust and expectations of other individuals in society. Education can aid in the reduction of prejudice and

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[8] See, for example, Baldwin and Huber, 2010; Burns and Keswell, 2012; Hinks and Posel, 2012, and Weesner, 2011.

discrimination and correcting cultural ills, by increasing inter-cultural understanding and enhancing unity amongst people, thereby improving the level of social capital (Gurin *et al.*, 2002). Generally, a lack of education can result in lowered understanding in inter-cultural interactions, and therefore tolerance of other groupings in society, ultimately resulting in reduced social capital. The extent to which individuals trust each other and are willing to engage with one another is an important cultural attribute that needs to be considered, particularly in an economic context, as it has a role to play in social conflict. Lastly, education (particularly formal education) can be used to encourage the convergence towards a greater common culture among people in society. Unfortunately, as will be discussed in the next section, the provision of education as a public good is negatively affected by cultural diversity, despite the fact that it is a fundamental component in the development of a cohesive culture in society. As a result, the relationship between cultural convergence and education is cyclical in nature, since education is identified as a factor which can create the convergence of culture in diverse societies, yet diverse societies tend to have poor provision of education.

In addition to the role of education and the level of social capital in a given society, socio-economic status and income inequality can also play an important role in determining the attitudes of individuals in society, which impacts on social cohesion. High levels of income inequality and strong divides between an upper and lower class citizenry can be just as salient as racial and ethnic cleavages, and are therefore also important aspects to consider in the contemplation of diversity. Empirical research has shown that countries such as Sweden, Norway, Denmark and Finland are homogenous in terms not only of ethnicity, but also income, and that these two aspects together contribute to high levels of economic performance (Knack and Keefer, 1997). This is attributed to the notion that social capital – particularly trust - and the formation of partnerships between people are more likely to occur when they share greater similar characteristics (Haile *et al.*, 2008; Burns and Keswell, 2011). This suggests that when looking at the issue of diversity, socio-economic inequality, education and overall degree of social cohesion should be considered in addition to ethnicity. In light of this discussion, it could be argued that a diverse society with multiple ethnic, racial, religious or linguistic groups, but also with high levels of education, and adequate income levels, would bear fewer negative effects of diversity when compared to a similar society with lower levels of education and income (Knack and Keefer, 1997). Considering the definition of culture, if all individuals in society are striving towards a common economic goal, with similar norms and values, and an ability and willingness to work cohesively with one another, then from an economic perspective it would be sufficient to label this economy culturally homogenous. Theoretically, this type of

society would be possible regardless of the ethnic, racial, religious or linguistic characteristics of the citizenry.

It is often presumed that the wealth, social class and ethnic grouping of an individual can be used as 'information shortcuts' concerning their reliability or trustworthiness, values and expectations. Homogeneity may reduce transaction costs, increasing social capital and ultimately increasing the likelihood of cooperative partnerships (Burns and Keswell, 2011). Social psychology literature affirms that group affiliation and identity is important for social outcomes, since individuals are thought to favour other individuals who they believe to be in the same group as themselves (Burns and Keswell, 2011; Posel and Hinks, 2012). The question is whether people relate more strongly to members of the same ethnic or cultural group, or more strongly to individuals of the same socio-economic status. Thus far the discussion has highlighted the importance of ethnicity as well as socio-economic status in the measurement of cultural diversity. It has also highlighted race, at a definitional level, as probably the least effective measure of an individual's culture. In practice, however, individuals are more likely to rely on information that is costlessly observable such as race or gender in order to identify the societal grouping of an individual. This is particularly the case in societies where this easily observable information is socially relevant – such as in South Africa where the legacy of apartheid has resulted in heightened racial awareness (Burns and Keswell, 2011). Because these characteristics are costless, they are likely to be favoured over other factors such as income or educational attainment, even when these components may be more important between group differences from an economic perspective. Although expectations can play an important role in social interactions, they depend on the context of the interaction between people. That is, the expectations considered when entering into a business partnership with an individual may be based on information about ethnicity, education and income, whereas the expectations considered when purchasing goods from a particular supplier may be based only on information of ethnicity (Burns, 2004). This notion of expectations and trust being linked to strategy selection is particularly relevant in segmented societies, where expectations have been created by historical or institutional legacies which inhibit the ability of previously disadvantaged groups to enter the mainstream economic environment, as is the case in South Africa.[9]

In settler societies, where plantations and mining economies were created following large-scale land appropriation, the systems of administration and control created inequality, resulting in tensions between the groups who gained from the colonial system and those who lost and

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[9] Whilst Burns and Keswell (2011) raise this argument for the South African case using racial groups, similar trust research has been done carried out looking at strategy selection between the religious castes in India in the research of Hoff and Pandey (2003)

suffered as a result of the system (Bujra, 2002). These tensions did not remain indefinitely at the structural level, but nor were they temporary phenomena which disappeared with the collapse of colonial rule. Instead, they were translated into the values and expectations of the people, often deeply entrenched and transferred from generation to generation long after the fall of colonial rule (Bujra, 2002). Therefore, countries which were once settler economies are often highly segmented as a result of their historical institutions. This is particularly relevant for African countries where the results of colonial rule impacted not only on the economic well-being of individuals, but also on the income inequality that resulted often occurred along ethnic lines. In the South African context, tensions have largely been entrenched along racial lines as a result of the apartheid system. Tensions also exist, although to a lesser extent, along tribal lines within the African population, religious lines within the Indian population, and linguistic lines within the White population.

It is often assumed in the empirical literature that culture remains constant across time; however, in light of the above discussion there is evidence that this is not necessarily the case.[10] The way in which culture develops over time is dependent on numerous factors which govern perceptions, learning and the overall development of behaviour. Over the course of time the needs of individuals in society change which gives rise to changes in the way people behave or act. A broad example of a significant cultural change is the fall of apartheid in South Africa. This resulted in substantial institutional changes, and required that all individuals in society altered their ways of thinking and interacting with one another. The new behaviours and perceptions that were developed during this transition have been passed on from generation to generation, and continue to change and adapt (Fedderke *et al.,* 2008). Thus, as conditions in society change, culture grows and develops in a dynamic, progressive nature, rather than remaining static and time invariant as is often assumed. Culture is therefore integrated with changes in socio-economic conditions, and can be influenced by institutional changes and educational influence (Fearon, 2002). Factors such as race, language, religion and ethnicity cannot easily be influenced by such changes, further highlighting their possible shortfalls in accounting for diversity.

It is evident from the discussion in this section that culture is a broad sociological construct based on a variety of group characteristics. It is therefore important to define what aspects of culture are important to a particular study, which depends largely on what relationships are being examined. In an economic context, culture and cultural diversity are often used to explain or proxy for conflict occurring in society, as well as to explain economic growth conditions. The

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[10] See, for example, Easterly and Levine, 1997; Alesina *et. al.*, 2003; Fedderke *et al.* 2008; and Fearon, 2002.

focus of this dissertation is to understand the links between diversity and the determinants of economic growth, and to examine the extent of diversity in South Africa. The remainder of this chapter will therefore undertake to explain the theoretical links between diversity and economic factors, as well as the transmission mechanisms by which these factors impact on economic growth itself.

2.2 Economic Effects of Diversity

The mechanisms through which diversity impacts on economic growth are often difficult to conceptualise. A review of the available literature reveals that diverse societies are prone to low levels of social capital, and diverse preferences.[11] These two outcomes of cultural diversity, in turn, lead to higher political instability and poor government policy and expenditure decisions.[12] The result of political instability and poor decision-making is reduced long-run economic growth prospects.[13] This section provides the theoretical framework of the dissertation, by outlining how diversity leads to lower social capital and diverse preferences, as well as how this leads to political instability and poor government decision-making, and how the culmination of these factors leads to poor economic growth. These connections are illustrated in Figure 2.1, and discussed individually in the sections that follow.

Figure 2.1 The theoretical framework for the economic effects of diversity
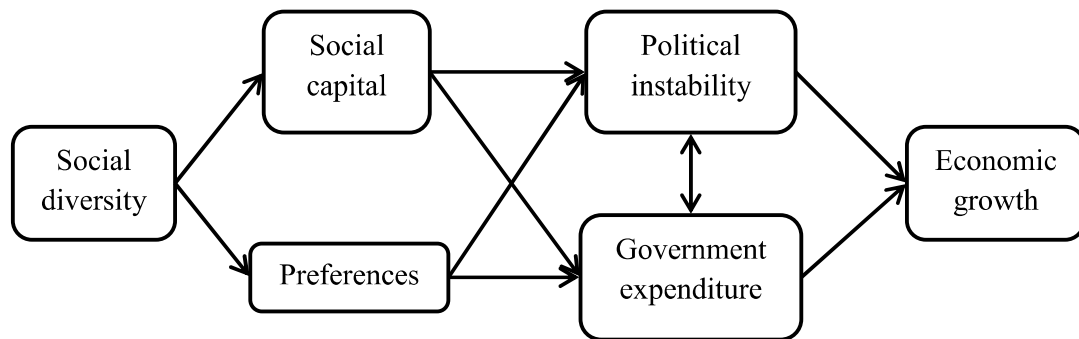
Source: Author's own work

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[11] See, for example, Habyarimana, 2007; Ratna *et al.*, 2009; Stichnoth and Van der Straeten, 2011; and Knack and Keefer, 1997.
[12] See, for example, Annet, 2001; Blanco and Grier, 2009; Helliwell, 1994; and Alesina *et al.,* 1999.
[13] See, for example, Easterly and Levine, 1997; Alesina *et al.*, 2003; and Montalvo and Reynal-Querol, 2005.

2.2.1 Social Capital

In theory, a major advantage of diversity is thought to be the potential for the spill over of knowledge and ideas between different groups (Ratna *et al.*, 2009). Different beliefs and perspectives in the workplace are thought, potentially, to increase creativity and problem solving abilities, provided that diversity is correctly managed. An opposing view is that there is the potential for high levels of diversity to increase the costs of communication (Ratna *et al.*, 2009). These barriers to communication can be attributed partly to language barriers between ethnic groups, and partly to lower interpersonal trust between individuals of differing cultural groups (Alesina *et al.* 2014; Ratna *et al.* 2009). Language barriers tend to reduce the ability of individuals to work co-operatively together, while trust facilitates the willingness to engage in economic transactions with individuals from other ethnic groups (Stichnoth and Van der Straeten, 2011; Knack and Keefer, 1997). A lack of trust ultimately hinders 'cross-fertilisation' of ideas and knowledge, and reduces social capital. Consequently, a need for public policies aimed at reducing the social and cultural barriers to communication has been recognised. Improvements in education and immigration policy, particularly in settler societies, have been suggested as the necessary public policy considerations to achieve this reduction (Ratna *et al.*, 2009). Furthermore, societies with strong ethnic or cultural cleavages, as well as high levels of socio-economic inequality, are likely to be more severely affected by lack of trust and willingness to work collaboratively. The existence of trust between people creates incentives for innovation, the accumulation of human capital, and successful government institutions (Knack and Keefer, 1997). In addition to barriers to communication, social diversity also increases the potential for social conflict within a society, which can ultimately create political instability.

By contrast, the success of public goods provision in homogeneous societies can be attributed to the fact that conditions are conducive to collective action between co-ethnics that are not available between members of different groups (Habyarimana *et al.*, 2007; Jackson, 2007). In the literature, this is credited to the fact that co-ethnics have an increased ability to communicate and interact with one another based on shared cultural and linguistic characteristics. Furthermore, the concept of 'mutual findability' plays a role, since members of a single group are more easily able to find or identify one another and censure individuals who are not compliant (Habyarimana *et al.*, 2007). Social diversity may therefore lead to a reduced ability to communicate based on language and cultural background as well as reduced accountability of individuals who do not co-operate, or live up to social norms and expectations, both leading to poorer collaboration within society. This reduced ability of individuals within society to work cohesively ultimately hinders economic growth potential, as will be outlined in section 2.2.5.

The final aspect of social capital can be referred to as strategy selection, which is based on the fact that people alter their behaviour depending on the ethnicity of the people with whom they interact (Habyarimana *et al.*, 2007). Income characteristics can also play a role in strategy selection (Haile *et al.,* 2008; Burns and Keswell, 2011). The implication is that in otherwise identical settings, an individual will choose different strategies when interacting with members of their own group to the strategies they would employ with individuals from another group. This strategy selection mechanism does not depend on the existence of some co-operation facilitating tool uniquely possessed by group members, as was discussed above. Instead, it focuses on aspects such as trust and perceived expectations of individuals when entering into partnerships with non-group members as opposed to members of the same group (Habyarimana *et al.,* 2007; Haile *et al.*, 2008). As a result of this strategy selection, it is likely that in more homogenous societies, individuals are more likely to build partnerships and work cohesively together.

2.2.2 Preferences

Diverse preferences have also been presented as a potential factor that may affect economic growth in diverse societies, and are strongly linked with ethnic conflict (Alesina *et al.*, 1999). This diversity of preferences is based on commonality of tastes, and the assumption that different groups have inherently different preferences regarding which public goods should be provided by tax revenues. A society made up of diverse groups is likely to have divergent preferences in terms of, for example, the language of instruction in schools, or which religious holidays should be observed (Habyarimana *et al.*, 2007; Jackson, 2007). Furthermore, theory proposes that the utility level of each group decreases, for a given public good, if that good is also utilised by other groups (Stichnoth and van der Straeten, 2011). In a similar vein, citizens are more supportive of redistribution if they believe that co-ethnics will benefit from the redistribution (Stichnoth and van der Straeten, 2011). In essence, diversity results in lack of consensus in terms of which public goods should be provided by government, making decision-making difficult (Habyarimana *et al.*, 2007). In addition, individuals may attach positive utility to the public goods that will increase the welfare of co-ethnic group members, even if not themselves in particular, and no utility or even decreased utility if the public good improves the welfare of non-group members (Habyarimana *et al.*, 2007; Haile *et al.*, 2008). This concept is also known as a 'taste for discrimination'.

2.2.3 Political Instability

It is generally accepted in the economics literature that ethnically diverse societies are more prone to political instability, which can have negative effects on growth and development.[14] This often arises as a result of the poorer levels of social capital and diverse preferences discussed above. Diversity is therefore believed to be a proxy for the degree of conflict in society, since according to the political economy literature, a society can be seen as a collection of disparate groups, each primarily concerned about its own interests, sometimes at the expense of the general interests of society (Annett, 2001). Diversity of preferences makes government decision-making more difficult, which may result in discontent when groups are unhappy about decisions made by government. Furthermore, the notion of a 'taste for discrimination' results in increased animosity and social conflict if government makes decisions which are perceived to benefit only certain groups within society. The reduced social capital in diverse societies, leading to the unwillingness and inability to work collaboratively can also give rise to tensions between groups. Consequently, high levels of diversity typically indicate higher levels of political instability (Annett, 2001).

Democracy has been said to play an important role in mitigating political instability. Strong democratic regimes which encourage citizens to participate in the political process are those most likely to decrease the potential for political instability (Blanco and Grier, 2009). This is because, in a democratic regime, with a strong ruler and an active citizenry, government has the ability to divert resources towards the provision of economic and political goods in attempts to alleviate social inequality and discontent among its citizens (Blanco and Grier, 2009). By contrast, weak and factionalised democracies or non-democratic regimes that do not give cognisance to the needs of the country's citizens are more likely to experience political instability.

A longstanding presumption in the economic growth literature is that democracy can be sustained in societies where the levels of economic development and education are high, and educational inequality is low (Lipset, 1959; Helliwel, 1994; Barro, 1999). This is because societies with higher levels of income combined with higher levels of education are likely to have greater willingness and ability to participate in the political process, which enables government to better understand the needs of its citizenry (Helliwel, 1994; Barro, 1996). Furthermore, such societies tend to have higher demand for political and civil freedoms, characteristic of strong democratic regimes (Helliwel, 1994). In ethnically diverse societies,

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[14] See, for example, Easterly and Levine, 1997; Annett, 2001; Fearon, 2002; Fukumi, 2004; Okediji, 2008; and Aisen and Veiga. 2012.

which are more prone to political instability, it is therefore important to establish strong institutions that endeavour to include individuals from diverse ethnic backgrounds in the political process, rather than allowing a single or select few groups to have a large influence (Blanco and Grier, 2009).

Furthermore, from an economic standpoint, is it necessary to establish institutions which encourage all members of society to participate in the workforce, and to contribute towards economic growth and development. It is believed that political instability is often driven by discrimination particularly on the basis of factors such as race, gender, age and sexual orientation (Okediji, 2008). The presence of such discrimination has led to extreme socio-economic inequalities between different groups in many developing countries, which hamper economic growth potential. However, it is important to note that diversity does not always necessarily result in political instability and conversely an ethnically homogenous society is not a sufficient condition to assume political stability (Blanco and Grier, 2009). Rather, it is often economic discrimination against minority groups which leads to rebellion and resistance by these minorities which results in political instability. Understanding the complex nature and manifestations of diversity and discrimination are crucial to developing policies that may reduce the negative effects of diversity and discrimination, in order to promote economic growth (Okediji, 2008).

Political instability poses a threat to the survival of the government in power (Annett, 2001). Governments operating in politically unstable regions are more likely to adopt sub-optimal policies, which is said to lead to higher government consumption.[15] This occurs when government increases its expenditures in an attempt to placate the discontented groups in society and reduce the political risk it faces (Annett, 2001; Montalvo and Reynal-Querol, 2005). It must be noted therefore, that it is through potential or real increased political instability that diversity leads to sub-optimal government decision making (Annett, 2001).

2.2.4 Government Expenditure and Public Goods Provision

Diversity is thus suggested to lead to sub-optimal governmental decision-making, via its effect on political stability.[16] In the literature, this sub-optimal decision making is assessed by examining government consumption or expenditure, or the provision of public goods.[17]

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[15] See, for example, Blanco and Grier, 2009; Butkiewicz and Yanikkaya, 2011; Collier and Hoeffler, 1998; and Annett, 2001.
[16] See, for example, Easterly and Levine, 1997; Alesina *et al.*, 1999; Annett, 2001; Alesina *et al.*, 2003; Barro, 2003; Fukumi, 2004; Montalvo and Reynal-Querol, 2005; Habyarimana *et al.*, 2007; Fedderke *et al.*, 2008; and Baldwin and Huber, 2010.

As discussed previously, it is presumed that different groups have heterogeneous preferences. These diverse preferences, as well as the 'taste for discrimination' against non-group members, make governmental decision-making difficult. This can be problematic even in the case of seemingly neutral public goods such as highways (Alesina *et al.*, 1999). When ethnic groups are segregated within a city, each group will have different travel patterns within the city. Consequently, the preferred location of major roads will differ significantly from group to group. Furthermore no neighbourhood of co-ethnics would want to be bisected or isolated from its community by road construction. In addition, if one ethnic group perceived that a new highway might be used almost exclusively by another ethnic group, they would be more likely to oppose the construction. Consensus from the general citizenry would therefore be difficult to obtain. In general, diversity is said to lead to less pooling of resources towards the provision of non-excludable public goods, and more public spending on private excludable goods (Alesina *et al.*, 1999).

Education has been identified as one of the affected public goods in diverse societies, which also further exacerbates other problems caused by diversity (Easterly and Levine, 1997). Poor minorities need education in order to gain skills necessary to participate in the labour force and improve their standard of living (Okediji, 2008). However, due to the presence of ethnic conflict, and the fact that ethnic groups have greater interest in pushing for the provision of public goods which exclusively benefit co-ethnics, the provision of public education is generally low in diverse societies (Okediji, 2008). This means that skills may not improve over time, resulting in increasing poverty, unemployment and inequality, and further deepening ethnic divisions.

In addition to the effects of diversity on the provision of public goods, diversity impacts on more general consumption decisions. Increased government consumption, aimed at reducing political instability, ultimately diverts resources away from other macroeconomic objectives that are important to promote and sustain long-term economic growth (Fukumi, 2004). Generally, this diversion is away from development expenditures such as education, health care and infrastructure, and towards non-productive expenditures such as salaries and wages of government employees, subsidies and government grants.

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[17] See, for example, Alesina *et al.* 1999; Annett, 2001; Alesina *et al.,* 2003; Fukumi, 2004; Montalvo and Reynal-Querol, 2005; Habyarimana *et al.*, 2007; Baldwin and Huber, 2010; and Stichnoth and Van der Straeten, 2011.

2.2.6 Impact on Economic Growth

Having gained an understanding of how diversity impacts social capital and preferences, and creates instability which affects government decision-making, the final step is to outline how diversity impacts economic growth.

Political instability is said to impact the economy due to the fact that it is likely to shorten policymakers' horizons in attempts to relieve political tensions, which ultimately leads to suboptimal macroeconomic policies in the short term (Blanco and Grier, 2009; Aisen and Veiga, 2012). In addition to the shorter horizons, political instability could lead to more frequent switches of policies, increasing volatility and uncertainty which negatively impacts macroeconomic performance. The macroeconomic variables which are primarily affected by political instability include inflation, investment and, ultimately, economic growth (Aisen and Veiga, 2012).

The channels through which political instability results in poor economic growth can be explained by looking at total factor productivity as well as the accumulation of both physical and human capital (Blanco and Grier, 2009; Aisen and Veiga. 2012). Three transmission channels have been identified. Firstly, political instability may lead to negative effects on total factor productivity. This is, in part, due to the possibility that increased future uncertainty could lead to less efficient resource allocation (Aisen and Veiga, 2012). Furthermore, greater uncertainty could decrease incentives for firms to invest in research and development, slowing down the rate of technological progress. Political instability could further impact on productivity due to the fact that politically unstable regions are prone to civil unrest, violence, vandalism and labour strikes which impact on the productivity of firms due to possible destruction of physical productive capacity as well as reduced labour hours or labour productivity (Blanco and Grier, 2009; Aisen and Veiga, 2012). Secondly, investment in physical capital is likely to be negatively affected due to the increased uncertainty regarding future macroeconomic policy decisions.[18] Since investments are often not easily reversible, expenditures on new capital projects may be postponed during periods of uncertainty, consequently having a negative impact on physical capital accumulation (Blanco and Grier, 2009; Aisen and Veiga. 2012). Finally, due to increased uncertainty, political instability could result in lower levels of investment in education by individuals, as well as potentially by government, having a negative effect on human capital accumulation (Aisen and Veiga. 2012).

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[18] See, for example, Mauro, 1995; Perotti, 1996; Alesina and Perotti, 1996; Blanco and Grier, 2009; Aisen and Veiga. 2012; and Alesina *et al.*, 1996

In an empirical context, total factor productivity and capital investment are the key, statistically significant, transmission mechanisms through which political instability impacts negatively on economic growth, measured as real GDP per capita growth, (Aisen and Veiga, 2012). Furthermore, total factor productivity, as a transmission mechanism, accounts for more than half of the overall negative effect, in this large cross-country panel study. The negative impact of political instability on investment accounts for between 22.59 and 28.71 percent of the overall negative impact on economic growth, and the impact of political instability on human capital accumulation accounts for between 17.08 and 21.11 percent of the overall negative effect on economic growth (Aisen and Veiga, 2012). Further empirical results on the economic effects of diversity and instability are discussed in Chapter Three.

High levels of government consumption are also generally associated with poor economic performance (Barro, 1996). Generally, expenditure on education is excluded from government consumption in this context in order to approximate the level of non-productive government spending. If the proportion of government consumption to GDP is high, it is predicted that the growth rate will fall for a given starting level of GDP (Barro, 1996). Since diverse societies are expected to have high levels of government consumption, the prediction is therefore that diversity indirectly hampers economic growth through its effect on government consumption. Government's developmental expenditures, such as education and infrastructure, impact positively on economic growth, by increasing productivity and reducing inequality (Fukumi, 2004). However, high levels of diversity negatively affect development expenditures, as discussed previously (Fukumi, 2004). This implies that diversity retards economic performance by decreasing development expenditures, and increasing non-development types of expenditures like public service salaries and social grants (Fukumi, 2004).

Diversity has a negative effect on the propensity for democracy since, as discussed earlier, diverse societies tend to have lower levels of education and greater income inequality, which are factors that reduce the likelihood of a strong democracy.[19] Democracy is said to impact on economic growth positively, since democratic institutions provide a check on government power, limiting the potential for government officials to institute unpopular public policies and reducing the ability of government officials to amass personal wealth at the expense of the country's citizenry (Blanco and Grier, 2009). Furthermore, strong democratic regimes reduce the likelihood that revolutionary activities will be successful in overthrowing the government, thereby reducing the incentive for individuals to engage in such activities (Alesina et al., 1996). Weak democracies are more likely to be overthrown, increasing the probability of revolution in

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[19] See, for example, Barro, 1999; Blanco and Grier, 2009; Helliwell, 2004; and Lipset, 1959.

the event that discontent among citizens is sufficiently high. In such societies, there is greater competition over limited resources, as well as greater incentive to engage in revolutionary activities rather than in productive market activities, indicating that the strength of political rule, whilst impacting on political instability, also impacts on the potential for productive market activities (Alesina *et al.,* 1996; Barro, 1999). Furthermore, in weak democracies, citizens have less control over the government, increasing incentives for corruption and abuse of power (Alesina *et.al.* 2014). Consequently, theory suggests that strong democracies enjoy positive economic outcomes; whilst weak democracies are more prone to instability and negative impacts on economic outcomes (Blanco and Grier, 2009). The effect of diversity on economic growth would therefore be likely to be negative in diverse societies.

There also exist possible negative effects of democracy on economic growth, since democracy encourages redistribution of income from the rich to the poor, which could empower certain interest groups (Barro, 1999). In addition, democracy encourages active participation of its citizenry (Helliwel, 2004). As interest groups gain power, through redistributive policy, they have more influence on government, and could pose a greater threat in the event that they become dissatisfied with government's performance. This suggests that in strong democratic regimes with effective redistribution policies, the net effect of democracy on economic growth is uncertain. However, there is some debate as to the effectiveness of redistribution policy in weak democracies or democracies where diversity is high. Some research highlights that the demand for redistributive is high in economies where income inequality is high.[20] Often this results in distortionary tax policy which can ultimately reduce investment and retards economic growth.

In addition to some uncertainty regarding whether democracy impacts on economic growth positively or negatively, there exists evidence that the causality of the relationship between democracy and growth may run in the opposite direction. That is, countries which experience growth, combined with improved standards of living, are more likely to demand political rights and to experience democracy (Barro, 1996). This is a question that is best answered in an empirical context, and will be discussed further in Chapter Three. These arguments for both positive and negative effects of democracy on economic growth and the uncertainty regarding the causality of the relationship can account for why democracy may not be a critical determinant of growth in an empirical context. Furthermore, the observed relationship is one that is not monotonic. Where initial democracy is low, with low levels of political rights, an improved democratic regime has been found to stimulate economic growth (Barro, 1996). In

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[20] See, for example, Alesina and Perotti, 1996; Bertola, 1993; and Persson and Tabellini, 1994

countries with an initially moderate level of political rights, further expansion of democracy has been found to reduce growth – likely due to the negative effects of increased focus on social programmes and income redistribution outweighing the other positive effects of democracy (Barro, 1996). In light of this, it is evident that one needs to consider the level of political freedom, the strength of the established democracy, and the degree of diversity, in order to predict fully the impact on economic growth.

2.3 Conclusion

Overall, the theoretical consensus indicates that societies with high levels of diversity tend to be politically unstable, which in turn diverts government expenditures away from areas which promote growth. Furthermore there is a strong argument that large barriers to communication between groups, inherent in diverse societies, hinder economic growth prospects through their detrimental effect on social capital. In diverse societies, strong legal frameworks to reduce discrimination are necessary in order to reduce levels of political instability and social conflict, which could, in turn, reduce distortions in government expenditure policy. Governments, particularly of diverse societies, need to recognise the importance of expenditure in areas that promote development, such as education and infrastructure. The centrality of education appears to be a common thread throughout the literature in terms of reducing discrimination, and therefore political instability, as well as reducing barriers to communication. It is therefore evident that understanding the nature of diversity is necessary in order to understand the extent to which it may account for poor economic performance, and ultimately to recommend policy changes that may improve economic growth.

In light of the above discussion, one might be able to begin to consider the possible case for South Africa. It is well known that South Africa is a multicultural society made up of a variety of linguistic, racial, religious and tribal groups. This diversity potentially results not only in conflict, but also in rent-seeking activities in the political arena. Consequently, it is likely that the negative effects of heterogeneity hinder the economic growth prospects for South Africa.

This chapter has sought to answer the question of why social diversity matters in an economic context. Given the ways in which diversity affects economic growth on a theoretical level, it is important to focus on the aspects of diversity that are politically relevant in the South African context, since diversity is proposed to impact largely on government decision-making (Fukumi, 2004). However, in order to measure the effect of diversity on growth, it is first necessary to examine the available empirical indices that quantify social or cultural diversity. The following chapter will therefore outline and critically review the measures of cultural diversity that are

used in the empirical literature, as well as highlight the empirical findings with regards to the relationship between diversity and economic outcomes. In addition, Chapter Three will review public policy implemented in South Africa which may impact on diversity, in order to begin to understand the extent and effects of diversity in South Africa.

CHAPTER THREE: EMPIRICAL MEASURES OF DIVERSITY AND THEIR USE

The previous chapter outlined the theoretical framework of this study: diversity may impact on economic outcomes through its effects on social capital, the diversity of preferences, political instability, and government expenditure decisions. The next step is to assess the effects of diversity in an empirical context. This chapter thus seeks to answer two key questions: First, how can diversity be quantified empirically? Second, what are the estimated empirical effects of diversity on economic outcomes?

The remainder of the chapter is structured as follows. In section 3.1, the various available measures of social diversity used in the current literature will be outlined, and critiqued. Section 3.2 reviews the findings of the existing empirical literature regarding the relationship between diversity and economic growth, with the findings in the South African context discussed in section 3.3. Finally, some of the policies put in place in South Africa in order to reduce the negative effects of diversity will be outlined in section 3.4, while section 3.5 concludes.

3.1 Empirical Measures of Diversity

It is clear, from the previous chapter, that culture in general, and cultural diversity in particular, has a role to play in the economic prosperity of a given society; however, the precise way in which culture and the level of diversity should be measured remains an area of significant debate.[21] Essentially, researchers need to account for the degree to which groups differ from one another in order to account for the potential for conflict which arises, which then could have a negative impact on economic outcomes, as discussed in Chapter Two. Unfortunately, there is great difficulty in measuring heterogeneity due to the fact that cultural groups are not always easy to classify, and are, in practice, far more complex than can be summarised by simple measures (Alesina *et al*., 2003). Nevertheless, numerous measures of diversity have been devised in a best attempt to account for the degree of ethnic diversity in society.

The earliest measure of social diversity is the ethnolinguistic fractionalisation (ELF) index, and has been the most broadly used in the international empirical literature to examine the effects of diversity.[22] Indeed, amongst the few existing studies that examine the nature of social diversity

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[21] See, for example, Fearon, 2003; Posner, 2004; Okediji, 2005; and Baldwin and Huber, 2010.
[22] See, for example, Collier and Hoeffler, 1998; Alesina *et al*, 1999; Fearon, 2003; and Okediji, 2011.

in South Africa, most use ELF as the measure of diversity.[23] However, there is a substantial body of international literature which highlights numerous problems with this index in fully capturing the effects of culture and diversity.[24] The calculation of this index, as well as these shortcomings, will be discussed in more detail in section 3.1.1.

Additional indices which have subsequently been developed and used in empirical analysis include the social diversity index and between-group inequality. This is by no means an exhaustive list of the diversity measures that have been used in the empirical literature; however, they are the most common and robustly-tested measures to date.[25] In addition to the use of social fractionalisation indices to account for diversity, some studies have assessed the potential usefulness of social polarisation to account for diversity, although there is a lack of consensus regarding the appropriateness of polarisation to capture the effect of cultural heterogeneity and its consequent effect on economic outcomes in empirical work.[26] The discussion that follows will elaborate on the rationales behind the various diversity measures, as well as the way in which they are calculated and interpreted. Each measure is assessed in terms of its strengths and weaknesses in order to provide some insight into their usefulness and potential application in empirical research.

3.1.1 Fractionalisation

Fractionalisation, a measure developed by Greenberg (1956), is calculated as the weighted average of group affiliation. Fractionalisation is defined by equation 1 below:

$$F = 1 - \sum_{i=1}^{N} (\pi_i)^2, i = 1, \ldots, N \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textit{(1)}$$

π_i is the proportion of the population in ith group.

N is the number of groups in the country.

Fractionalisation measures the probability that two randomly selected individuals will belong to different groups. The index of fractionalisation ranges from zero to one, with a minimum value of zero indicating that all individuals belong to the same group, and a maximum value of one indicating that all individuals belong to different groups; that is, a zero probability that two randomly selected individuals will belong to the same group. Consequently, the higher the value

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[23] See, for example, Easterly and Levine, 1997; Alesina *et al*, 1999, Fedderke *et al*, 2008; and Deumert and Mabandla, 2009.

[24] See, for example, Posner, 2004; Okediji, 2005; and Fedderke *et al*, 2008.

[25] See, for example, Easterly and Levine, 1997; Annet, 2001; Alesina *et al*, 2003; Okediji, 2005; and Baldwin and Huber, 2010.

[26] See, for example, Easterly and Levine, 1997; Alesina *et al,* 2003; Montalvo and Reynal-Querol, 2005; Ratna *et al,* 2009; and Okediji, 2011.

of fractionalisation, the more culturally diverse the society is, and the lower the value the more culturally homogenous the society is.

The degree of fractionalisation can be calculated to measure the degree of heterogeneity in society using any group-based characteristic. The most common fractionalisation measure used in the literature is ethnolinguistic fractionalisation (ELF), where mother tongue or home language acts as a proxy for ethnicity, which is used to capture cultural identity.[27] The ELF index was first calculated for a cross-section of 129 countries by Taylor and Hudson (1972) using data collected in the early 1960s. In this publication, ethnic groups were defined mainly by language, although race or national origins were sometimes used to define groups that were identified as distinct despite their common language (Fearon, 2002). This is the diversity index most commonly utilised in empirical research due to the large number of countries for which the index was calculated, and due to the belief that cultural fractionalisation is something that remains relatively constant across time (Mauro, 1995; Easterly and Levine, 1997; Baldwin and Huber, 2010). The fact that data from the 1960s continue to be used to test hypotheses about the consequences of diversity, in much later time periods, is one of the major criticisms levelled against the ELF index's use in empirical research.[28] Assessing the degree to which the measured extent of diversity in South Africa changes over time is thus one of the goals of this dissertation.

Language, rather than race, is used as a proxy for ethnicity due to the fact that even in countries where the majority of the population belongs to the same race group, there may be quite significant linguistic diversity. In addition, race data tend to be quite aggregated in some sense, and lack what has been called 'fluidity' (Montalvo and Reynal-Querol, 2005). For example, in South Africa all black African people are classified as belonging to the same race group. However, the languages spoken by the African population are better able to account for cultural differences, since most of South Africa's eleven national languages can be traced back to the deeply rooted African tribal groups. There are of course countries where the opposite may hold true. In a South American country like Brazil, where most of the population tend to speak the same language and consequently there would be lower linguistic diversity, the ELF index implies a relatively homogeneous society (Okediji, 2008). However, such countries are generally more racially diverse than they are linguistically diverse, and the ELF index would underestimate the extent of fractionalisation. This is another point of criticism against the use of

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[27] See, for example, Taylor and Hudson, 1972; Easterly and Levine, 1997; and Alesina *et al,* 2003.
[28] See, for example, Posner, 2004, Fedderke *et al*., 2008; Campos *et al.* 2009; and Stichnoth and Van der Straeten, 2011

ELF, as it has the potential to be misleading in some societies where the salient dimension of ethnicity maybe some other cultural trait besides language.[29]

3.1.2 Social diversity index

The social diversity index (SDI) developed by Okediji (2005) has been considered to be a more robust measure of ethnic fragmentation. In this case, three different individual characteristics are used to account for cultural identity: the index is a weighted average of racial identity, linguistic grouping, and religious affiliation (Okediji, 2005). The benefit of the SDI is that it does not use race, language or religion in isolation as the sole determinant of culture, but rather a combination of the three, thus overcoming one of the shortcomings of the ELF index. This index has not yet been used widely in international studies to date, due to its relatively recent introduction. The SDI is defined by equation 2 below:

$$SDI = 1 - \sum_{i=1}^{L} \sum_{j=1}^{R} \sum_{k=1}^{S} \left(\frac{n_{ijk}}{N}\right)^2, i = 1, \ldots L, j = 1, \ldots R, and\ k = 1, \ldots S \ldots\ldots (2)$$

n is the number of people in ith, jth, kth groups

N is the total population size

$L, R, S,$ are numbers of linguistic, racial and religious groups in the country, respectively.

The SDI measures the probability that two randomly selected individuals will belong to different linguistic, racial and religious groups. This index ranges from zero to one, with a minimum value of zero indicating that two randomly chosen individuals bear the same cultural characteristics, and a maximum value of one indicating that the two individuals belong to unique combinations of the three cultural characteristics. This means that, similar to the ELF, the higher the value of the SDI the more culturally diverse the society is.

Okediji (2008) calculated the SDI for South Africa, which was 0.97, compared with the ELF of 0.88 published by Taylor and Hudson (1972).[30] Both of these figures indicate that South Africa is a very diverse country. However, what is surprising is that when using the ELF, South Africa is ranked as the fifth most diverse country in Africa, whereas the SDI places South Africa in 21st position (Okediji, 2008). This implies that South Africa is very diverse in terms of the languages spoken, but has relatively less racial and religious fractionalisation, compared to other countries in Africa. In the South African context this highlights how, whilst we are linguistically diverse,

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[29]See, for example, Stichnoth and Van der Straeten, 2011; Posner, 2004; and Baldwin and Huber, 2010.

[30] Data for the social diversity indices published in Okediji (2005) were primarily collected from the second edition of *The World Christian Encyclopedia* (2001), which contained the most extensive compilation of ethnic, racial, linguistic, and religious divisions within a country. Additional secondary sources included the *World Factbook* (1999) and the *World Handbook of Political and Social Indicators* (1972).

the additional inclusion of racial or religious grouping does not contribute to additional diversity – at least not to the extent that it might in some societies, particularly those with low linguistic diversity – as in some respect language could be considered as synonymous with race and religion in South Africa. Knowing the ethnolinguistic grouping of an individual is largely indicative of their racial and religious backgrounds as well – particularly for the large African population in South Africa. A converse case can be highlighted for Brazil, which is linguistically homogenous, and the inclusion of race and religion contributes to much higher diversity. In the case of Brazil, the ELF and SDI were 0.07 and 0.66 respectively, with Brazil ranking as the 18th most diverse (or the sixth most homogeneous) country in Latin America according to ELF, but the second most diverse when considering all three of the components in the SDI calculation (Okediji, 2008). This clearly indicates that there are significant differences in how the two measures account for diversity.

More recently, it has been argued that components such as the colour of someone's skin, the language they speak, and the religion they profess to belong to are not sufficient to measure the ways that differences between people affect economic outcomes (Baldwin and Huber, 2010). Another way of looking at the diversity issue is to consider the familiar Gini coefficient which assesses inequality based on the income of each individual in society (Baldwin and Huber, 2010). A Gini coefficient of zero would indicate perfect equality, in that all individuals in society receive the same income, and the maximal value of one would indicate the highest possible degree of inequality where one person earns all of the income in that society. The Gini coefficient can be decomposed into three parts – within-group inequality, between-group inequality, and what is termed "overlap". The particular aspect of interest in this case is the between-group inequality, which measures the inequality among distinct groups based on the mean income of each group. It has been argued that it is the group-based differences in economic well-being that lead to different needs, or preferences, in terms of public policy. This includes issues such as public goods provision, redistribution policy and anti-discrimination policy.

Between-group inequality is based on a fractionalisation perspective, assuming that conflict between groups increases with the likelihood that a certain individual will encounter an individual from another cultural group. Consider a simple example of a country, independent of its ethnic structure, which has a high degree of income inequality. Then consider that this society is made of numerous well-defined ethnic groups, and that the inequality of income between groups is also high. This case is likely to result in potential conflict between the "richer" and "poorer" ethnic groups. The higher the level of inequality between groups, the

greater is the potential for conflict. Furthermore, the fact that this "richer" − "poorer" divide is based on ethnic identification has the potential to further entrench these social cleavages between groups, which poses a significant problem for policymakers. In the absence of data regarding the economic attributes of groups, such as income, there is some justification for using measures like the ELF and SDI which incorporate information about group number and size. However, the inclusion of income or some other data on economic well-being would clearly provide additional information regarding the potential for conflict, as well as, more simply, the degree to which groups differ.

The usefulness of an index that captures socioeconomic attributes as well as more traditional elements, such as ethnicity, is well illustrated by studies in experimental economics. In a trust game experiment conducted in South Africa, using a sample of African, Coloured and White high school students, subjects were provided with information about the racial characteristics of their counterparts in order to test how this would affect the willingness of individuals to engage in partnerships (Burns, 2004). This type of experiment was first developed by Berg *et al*. (1995) and is one of the prominent experimental instruments used to measure cooperativeness in societies.[31] The most significant finding of this study is evidence of systematic distrust towards African counterparts by all race groups. Furthermore, Africans are the least trusting of all race groups. These low levels of trust are determined by the expected returns of the subjects from their counterparts in the experiment. Overall, despite the poor expectations of returns from African counterparts, as well as the low expected returns of African subjects, these expectations are not realised. That is, there is no significant difference in the level of trustworthiness between race groups.

An additional trust game experiment was conducted, using a similar experiment design, with a sample of African and White university students in the North West Province of South Africa (Haile *et al.*, 2008).[32] In this experiment, subjects were provided information regarding both racial and socio-economic characteristics, in order to examine their willingness to engage. An interesting finding in this trust experiment was that despite the heterogeneity both in terms of income and ethnicity in South Africa, the overall level or trust and trustworthiness was comparable to observations in relatively homogeneous societies for the control group who were

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[31] The trust game experiment, also known as 'the investment game' is a game between two players where the first player must send part of his initial endowment to the second player. The person conducting the experiment triples the amount send to player two and then player two must decide how much of their total endowment to send back to player one. This game is considered to be a trust game, since it tests player one's trust in the willingness of the second player to reciprocate, with the amount sent by player one considered to be indicative of the level of trust.

[32] The experiments were conducted at the Potchefstroom University (which was predominantly white) and Mafikeng University (a predominantly African university).

not provided information regarding the race or income of their counterparts. This could be attributed to the fact that in the absence of information, individuals might assume that the person they are engaging with has similar characteristics to their own. However, in the non-control sample, where information regarding the income and race of an individuals' game counterpart that was provided, the trust behaviour was affected significantly (Haile *et al.,* 2008). Particularly low levels of trust, and willingness to cooperate were found in the 'maximal distance' partnerships of low income subjects paired with high income subjects from another race group (Haile *et al.,* 2008). This indicates that, in the South African context, it is likely that ethnic diversity alone is not sufficient to explain a lack of social cohesion, but that it is rather explained by the interaction of income and ethnic diversity.

3.1.3 Between-group inequality

Between-group inequality (BGI) measures the expected difference in the mean incomes of the ethnic groups of any two randomly selected individuals, to measure the degree of diversity of economic well-being of the ethnic groups in a given society. It thus incorporates both socio-economic and cultural diversity in one index. This is defined by equation 3 below:

$$ BGI = \left(\frac{1}{2\bar{y}}\right) \sum_{i=1}^{N} \sum_{j=1}^{N} \pi_i \pi_j \ |\bar{y}_j - \bar{y}_i| $$ ………………………………………………… *(3)*

$\bar{y}$ is the mean income in the country

$\bar{y}_j - \bar{y}_i$ is the difference of mean income of groups *i* and *j*

π is the proportion of people in *i*th, *j*th groups

N is the number of groups in the country.

The BGI is seen as an extension of the ELF, allowing income between ethnic groups to vary. The BGI ranges from zero to one, taking on the minimum value of zero when the average incomes of all ethnic groups are the same, and the maximum of one when all of the society's income is controlled by a single infinitely small group. Put simply, the lower the BGI value, the less inequality there is, and the closer the BGI is to one, the higher the degree of economic inequality between ethnic groups. Other measures besides mean income can be used to account for economic well-being, and will be discussed further later in this dissertation.

Recall the earlier example that ranked Brazil as the 18th most diverse country in Latin America in terms of ELF, and second most diverse in terms of the SDI. Baldwin and Huber (2010) used survey data compiled from the Comparative Study of Electoral Systems and the World Values Survey to calculate the ELF index for Brazil, and ranked it as the 19th most diverse country in

the panel of 46 countries. The BGI, however, indicated a much higher degree of inequality, placing Brazil as the second most diverse country in the panel. Figure 3.1 below displays the relationship between standardised values of ELF and BGI, and indicates that there is a strong positive correlation between the two measures of diversity. However, the two indices do not produce identical results. Among low BGI countries, ELF scores range quite significantly, and those countries with high ELF scores have BGI scores that range quite significantly. Despite the high correlation, it is thus evident that the choice of measure has significant implications on the relative ranking of countries and their levels of diversity. It is therefore clear that they measure and highlight different aspects of diversity, both of which may be important in an empirical context.

Figure 3.1 The relationship between ELF and BGI
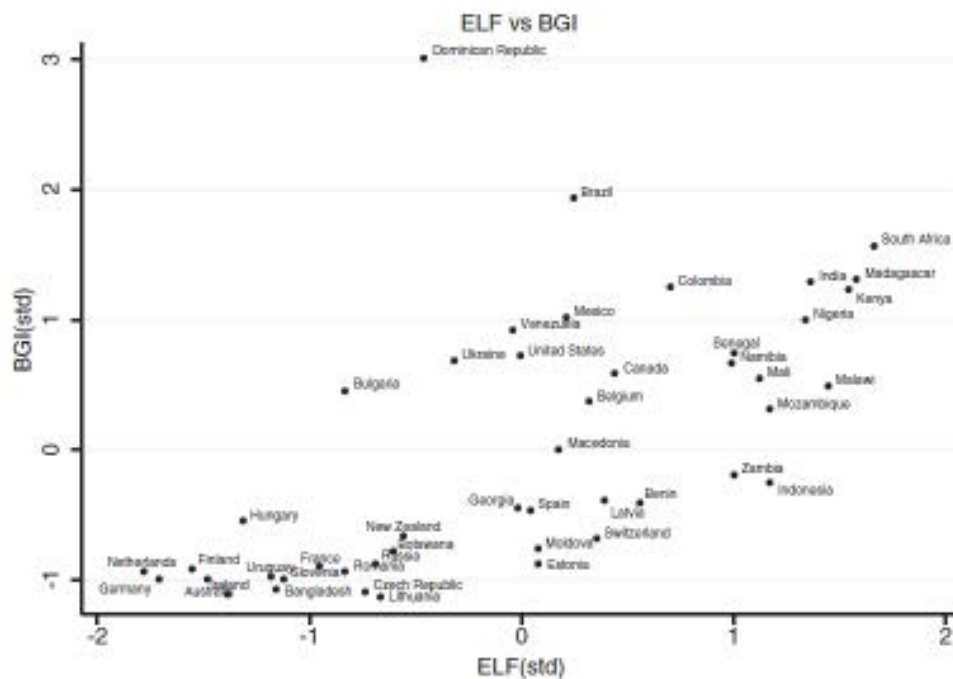
Source: Baldwin and Huber (2010)

The use of the BGI in cross-country empirical analysis has faced one major drawback: it requires data regarding the economic well-being of ethnic groups in a country (Baldwin and Huber, 2010). In contrast, numerous scholars have calculated ELF measures for almost every country in the world, due to the relative ease of access to reliable ethnicity data, compared to individual level income data, by ethnic group.[33]

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[33] Taylor and Hudson, 1972; Alesina *et al,* 2003; and Fearon, 2003.

3.1.4 Polarisation

In addition to the notion of fractionalisation-type indices, such as those discussed above, some researchers have proposed the use of a measure of polarisation to capture social diversity (Montalvo and Reynal-Querol, 2005; Alesina *et al*, 2003). As discussed previously, societies that are culturally or ethnically diverse are said to be more prone to civil conflict. However, arguments have also been made that this relationship is not monotonic, and that lower levels of conflict are experienced by societies that are extremely homogeneous or extremely heterogeneous (Horowitz, 1985; Montalvo and Reynal-Querol, 2005). Evidence has been found to support the notion that conflict is more likely in a case where an ethnic minority faces an ethnic majority (Horowitz, 1985). If this is indeed the case, then measures of fractionalisation which simply look at the number of different groups in a society do not sufficiently indicate the likelihood of conflict. Instead, the use of a measure of polarisation is suggested to better account for social conflict.[34]

The use of polarisation indices to account for ethnic conflict is based on rent-seeking models. In the presence of strong social cleavages, it is inevitable that frictions will occur among social groups (Montalvo and Reynal-Querol, 2005). These tensions typically arise along racial, ethnic or religious lines, and occur as a result of the different preferences of each group. These differing preferences result in groups spending resources in order to gain influence over political decisions which benefit their own group (Montalvo and Reynal-Querol, 2000). This use of resources in rent-seeking contests is considered to be a social cost, which is undesirable. In theory, a society with a single homogenous group would not experience this social cost of social conflict. In contrast, in a society where every individual belongs to a different group, there would be no potential gain for any single group to fight for power. This implies that in cases where there is only one group, and cases where there are very many groups, there is a reduced likelihood for social conflict. Although theory predicts that as the number of social groups increases, so do social tensions, it is proposed that this will only happen up to a certain point, after which additional groups will reduce the likelihood of conflict. This point where conflict is most likely is where there is a bimodal distribution of groups, that is, where there are only two groups, each made up of fifty percent of the total population (Montalvo and Reynal-Querol, 2000).

The measure of ethnic polarisation that has gained prominence in the literature was derived from a simple model of rent-seeking, and is related to the polarisation measure proposed by

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[34] See, for example, Montalvo and Renal-Querol, 2005; Alesina *et* al, 2003; and Esteban and Ray, 1994.

Esteban and Ray (1994). It measures the normalised distance of a particular distribution from a bimodal distribution and is defined by equation 4 below:

$$\text{Polarisation} = 1 - \sum_{i=1}^{N} \left(\frac{0.5 - \pi_i}{0.5} \right)^2 \pi_i = 4 \sum_{i=1}^{N} \sum_{j \neq i} \pi_i^2 \pi_j \dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(4)}$$

π is the proportion of the population in ith, jth group

N is the number of groups in the country

The Ethnic Polarisation (EP) index is a special case of this index in which the groups are defined according to ethnicity. Holding the 'distance' between groups constant, the EP index is maximised at a value of one where there are only two groups of equal size, in contrast to fractionalisation which increases with the number of social groups in the society. The degree of polarisation should increase as the 'distance' between groups increases; however, it is difficult to capture the distance between groups, resulting in the implicit assumption that the distance between any two groups is equal (Alesina *et al.,* 2003).

Montalvo and Reynal-Querol (2005) calculated the ELF index as well as the EP index using survey data for South Africa and Brazil, as well as many other countries around the world. Surprisingly, the ELF measures for South Africa and Brazil were 0.469 and 0.644 respectively, in contrast to the 0.88 and 0.07 calculated by Okediji (2008). This is likely due to varying definitions of ethnic groups, and the level of aggregation of ethnic group data, being less aggregated for Brazil and more aggregated for South Africa. This indicates that, according to the survey data collected by Montalvo and Reynal-Querol (2005), Brazil is more culturally diverse than South Africa. The EP indices for South Africa and Brazil were calculated as 0.718 and 0.773 respectively. This indicates that although the countries' levels of fractionalisation are quite different, they are both highly polarised, suggesting similar potential for ethnic conflict in both countries.

The use of polarisation to account for poor economic outcomes has been criticised due to the fact that although polarisation may better predict likelihood of conflict and incidence of civil war, this is neither the only, nor the most significant, negative impact of diversity (Alesina *et al.,* 2003).

3.1.5. Discussion

What is clear thus far is that the available empirical measures to account for social diversity are quite different from each other, in terms of both the aspects of diversity that they measure and their quantitative values. In addition, measures calculated using different data sources may yield varying results. The decision as to which index to include in regression analysis would therefore

have significant implications on the resulting relationship that one might find between diversity and economic outcomes. When considering the role of diversity in influencing the level of social capital in society, it is likely that measures taking into account the most salient social cleavages better predict economic outcomes. For example, in countries that are homogeneous in terms of race, yet diverse in terms of language, ethnolinguistic fractionalisation would be an appropriate measure to account for diversity. If, however, a country was homogenous in terms of language, with race being a salient social cleavage, ethnolinguistic fractionalisation would be ineffective in accounting for lower levels of social capital, and poor economic growth. In light of this, the SDI is likely to be most useful for countries where racial, linguistic and religious grouping are all important in society, or where the negative impact on economic growth is largely as a result of diverse preferences. The BGI index is likely to be useful for countries with significant socio-economic inequality, and where there are strong cleavages between social classes. In order to better understand the practical applications of each of these indices, as well as the empirical findings with regards to diversity and economic outcomes, the discussion in the following sections will undertake to assess the empirical literature that has examined how the various measures impact on economic growth and other economic outcomes.

3.2 Empirical Findings

One of the first major contributions to the empirical understanding of the relationship between diversity and long-run economic growth occurs in the research of Easterly and Levine (1997). This study tests the hypothesis that differences in ethnic diversity across countries help to explain some of the differences in public policies, political instability and other variables associated with economic growth at a cross-country level. In this study, ethnolinguistic fractionalisation (ELF) is the primary measure used to account for ethnic diversity. A later study, conducted with updated data, largely confirms the results of Easterly and Levine (1997) (Alesina, *et al.*, 2003). This study also includes alternative measures of diversity, including ethnic fractionalisation, religious fractionalisation and polarisation.

Ethnic diversity is used to examine the direct impact of diversity on long-run economic growth, as well as its impact on policies which affect long-run economic growth. This study finds that when controlling for factors like education, political instability, foreign exchange distortions, the budget deficit or surplus and financial depth, ethnic diversity, as measured by ELF, has a negative and statistically significant impact on economic growth (Easterly and Levine, 1997).[35] The inclusion of an additional control variable for infrastructure weakens the significance and

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[35] Financial depth refers to the size of the financial sector relative to economic output, and represents the availability of funds to government and the private sector.

size of the impact of ethnic diversity on economic growth, indicating that ELF loses its independent association with economic growth due to the fact that it is sufficiently correlated with public policy indicators.

ELF is then used to examine the indirect impact of diversity, through its impact on the determinants of long-run economic growth. According to the empirical results, ethnic diversity has no significant relationship with political instability (Easterly and Levine, 1997).[36] It must also be noted, however, that the political instability measures indicated that political instability is not significantly higher in Africa than when compared to the rest of the world – surprising, considering the high degree of ethnic conflicts on the continent (Easterly and Levine, 1997). This suggests that the measures of political instability used do not fully capture the degree of political unrest that occurs as a result of ethnic tensions. Significantly negative correlations exist between ethnic diversity and school attainment, financial depth, and the level of infrastructure – measured by the number of telephones per worker (Easterly and Levine, 1997; Alesina *et al.,* 2003).[37] In addition a significantly positive correlation exists between ethnic diversity and black market premia (Easterly and Levine, 1997; Alesina *et al.,* 2003). No negative correlation is found to exist between ethnic diversity and fiscal surplus (Easterly and Levine, 1997).[38] This result, however, is not confirmed using the updated data of Alesina *et al.* (2003). This later study finds that a negative correlation exists between ethnic diversity and fiscal surplus. This negative correlation implies that more diverse economies are likely to have lower fiscal surpluses or larger deficits, which is in line with theoretical expectations in the literature. More diverse economies are prone to higher government consumption and budget deficits. The overall empirical findings are that ethnic diversity negatively impacts on long-run economic growth, primarily through its impact on public policy and the provision of public goods.

However, the same findings are not present with the inclusion of religious fractionalisation as an alternative measure of diversity. Religious fractionalisation does not yield the same strong inverse relationship with economic growth, as the case is with ELF and ethnic fractionalisation, nor does it display the same relationship with the determinants of economic growth (Alesina *et al.*, 2003). A reason that is proposed for this is the endogeneity of religion. Given that individuals can 'hide' their religion, in order to avoid discrimination or repression, and that

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[36] Ethnic diversity is measured by ethnolinguistic fractionalisation in Easterly and Levine (1997).

[37] Ethnic diversity is measured by ethnolinguistic fractionalisation (ELF), and ethnic fractionalisation in Alesina *et al.* (2003). The defining of ethnic groups within countries, and the subsequent calculation of ethnic fractionalisation, was performed by the authors. The results for both ELF and ethnic fractionalisation are similar, although the correlations with the determinants of economic growth are slightly lower for ELF.

[38] The fiscal surplus is measured as the ratio of government surplus to gross domestic product (Easterly and Levine, 1997; Alesina *et al.,* 2003).

individuals change their religion in a way that they cannot change their racial, linguistic or ethnic origins, it is possible that higher observed religious fractionalisation is indicative of more tolerant democratic regimes (Alesina *et al.,* 2003). As a result, religious fractionalisation is not a recommended measure to account for diversity when explaining poor economic outcomes.

Polarisation, as an alternative measure of diversity, is highly correlated with ethnolinguistic diversity (Alesina *et al.*, 2003). Despite this, the inclusion of polarisation, rather than fractionalisation, in growth regressions generally yields substantially weaker results. When both polarisation and fractionalisation are included in the same growth regressions, fractionalisation typically remains significant, whilst polarisation does not. Although polarisation has been shown to better predict the incidence of civil war, this is not necessarily a contradiction. It is plausible that civil war is more likely when two large, equally sized groups are competing for power than when compared to many small groups; however, government decision-making and public policy choices may be particularly difficult when there are many small groups with competing interests, as opposed to just two groups. In light of this reasoning, Alesina *et al.* (2003) suggest that fractionalisation, and particularly ethnic fractionalisation, are better indicators of the impact of ethnic diversity than polarisation when it comes to predicting the negative consequences on economic outcomes.

In a subsequent cross-country study, Montalvo and Reynal-Querol (2005) compare ELF with their measure of ethnolinguistic polarisation (EP). Similar to the previous research discussed above, the ethnic diversity measures are included as covariates in growth regressions in order to highlight the direct impact of diversity on long-run economic growth. In addition, the indirect channels through which diversity is proposed to affect economic growth are also examined. These indirect channels include investment, civil war and government consumption (Montalvo and Reynal-Querol, 2005). When both ELF and EP are included in the same regression, ELF displays a significant negative impact on long-run economic growth, in line with the findings of the general literature, whilst EP has no statistically significant effect on growth. EP has a statistically significant negative impact on investment and a positive impact on civil war and government consumption. ELF has no significant impact on either of these indirect channels. This study also tests the separate effects of ELF and EP individually on economic growth and the indirect channels through which diversity might affect growth. ELF has a small but significant negative impact on economic growth, and no significant impact on the indirect channels, whereas EP has no direct effect on economic growth and significant effects on the indirect channels (Montalvo and Reynal-Querol, 2005). These results are consistent with those that are found when both measures are included in the same models. Overall, the results indicate

that ELF has a significant direct negative effect on long-run economic growth, but does not impact on economic growth through the indirect channels of investment, civil wars, and government consumption. In contrast, EP does not directly influence economic growth, but does impact on economic growth via the three indirect channels.

According to a study conducted in the United States in the 48 neighbouring states, racial diversity has a significant negative causal impact on long-run economic growth (Ratna *et al.* 2009). This research hypothesises that social segregation and diversity hamper the diffusion of knowledge across groups, impacting on economic growth. Linguistic, racial and religious diversity measures are regressed against gross state product in each state, along with other control variables. Furthermore, the same diversity measures are included in a growth regression in order examine how the levels of diversity impact on output growth. In addition to measures of diversity, the presence of barriers to communication is also taken into account by assessing what percentage of the population in each state has insufficient levels of English fluency. The results indicate that in the presence of high barriers to communication, racial fractionalisation, in particular, has a negative impact on state-level economic performance, after controlling for other variables. This study highlights the important role of education policy in reducing barriers to communication, since, in addition to improving the ability to communicate in a common language, education improves intercultural understanding and tolerance (Ratna *et al.*, 2009).

Another study conducted in the United States examines the impact of ethnic diversity on public goods provision and government expenditure at the city, metropolitan and county levels (Alesina *et al.,* 1999). Ethnic diversity is measured by racial fractionalisation. The results show that at the city level, there is an inverse and statistically significant relationship between ethnic diversity and productive government expenditures). These expenditures include the share of total spending on roads, sewerage and trash removal, and fire protection services. By contrast, the share of spending on police services has a positive relationship with diversity. This is attributed to the fact that diverse communities are more prone to violence and crime, which increases the need for policing. At the metropolitan and county levels, ethnic diversity is negatively related to the share of total spending on roads, education, welfare and roads, and positively related to the share of spending on policing services, largely consistent with the city level results. At the metro and county levels, the share of spending on health care increased with ethnic diversity – inconsistent with the other public spending results (Alesina *et al.,* 1999). The reasons for this are not initially clear. Nonetheless, these findings with regards to the impact of diversity on public goods provision fall largely in line with the theoretical expectations that diversity leads to reduced government development expenditures.

In addition to examining the relationship between diversity and non-excludable public goods, intergovernmental transfers and total government expenditures were also investigated (Alesina *et al.,* 1999). At the city and metropolitan levels, ethnic diversity is positively and significantly related to intergovernmental transfers.[39] That is, in more ethnically diverse localities, local governments receive larger transfers from the higher levels of government. It is this relationship that can help to explain the observed positive relationship between diversity and spending on health, since part of the spending on health is considered a public good which is generally negatively affected by ethnic diversity, and part is government transfers towards health services subsidies, which are generally positively related to ethnic diversity. In addition to the positive relationship between diversity and transfers, total government expenditure is significantly and highly positively related to ethnic diversity at the city, metropolitan and county levels (Alesina *et al.,* 1999). This implies that the effects of the positive relationship between diversity and government transfers outweigh the effects of the negative relationship with development expenditures, leading to higher overall expenditures. In addition, although not explicitly highlighted in this study, higher levels of other consumption expenditures generally associated with ethnic diversity could also account for the overall positive association of diversity and total government expenditures.

It is worth noting that in the US, ethnic minority groups are generally poorer than the White majority. In addition, more fractionalised areas tend to have higher numbers of ethnic minority groups, whereas the more homogeneous areas tend to be dominated by the White majority. This suggests that the higher fractionalisation levels, indicating higher levels of government transfers and government expenditures, is likely due to the greater number of poor minority groups occupying these areas. This highlights that failing to take into account income characteristics of the ethnic groups can suggest misleading results. In the examples above, it may not be the diversity of ethnic groups that accounts for high inter-governmental transfers and expenditure, but rather the income characteristics of the diverse ethnic groups.

In addition to studies that make use of polarisation and fractionalisation, which are measured by a single facet of ethnic identity, the social diversity index (SDI) has also been used to account for the effects of ethnic diversity on long-run economic growth. In the research of Okediji (2011), the SDI is compared to ELF for a sample of 132 countries. The effect of each measure's impact on economic growth is assessed while controlling for macroeconomic factors including

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[39] At the county level, the relationship is positive, but not significant.

educational attainment, initial income and fiscal surplus.[40] The SDI has a significant negative impact on long-run economic growth, whereas ELF has no significant impact. In addition, the inclusion of other macroeconomic control variables reduces the negative effect of the SDI on economic growth. This is in line with the findings of the larger body of literature, due to the fact that ethnic diversity impacts economic growth indirectly through its effect on economic policy. Bivariate regression analysis, in which the SDI and ELF are included as determinants of macroeconomic outcomes, reveals that the SDI is significantly inversely correlated with educational attainment and trade openness, but not significantly correlated with fiscal surplus. Educational attainment is included to account for the degree of human capital, and also gives an indication of levels of social capital in a given society. Therefore, lower educational attainment in diverse societies is indicative of lower levels of both human and social capital. In addition, these findings also suggest that more diverse countries are less open to international trade. In contrast, ELF is significantly positively correlated with trade openness and fiscal surplus, but not significantly correlated with education (Okediji, 2011). The indication that more diverse societies, when using the ELF index, are prone to higher fiscal surplus is in line with expectations since high levels of consumption expenditures are generally associated with diverse economies.

As previously discussed, both the theoretical and the empirical literature suggest a need to examine the effects of both fractionalisation and ethnic income inequality when examining the effects of diversity on economic outcomes. In a multivariate cross-country analysis, between-group economic diversity, as measured by the between-group inequality (BGI) index, accounts for a significant portion of the effect of diversity on economic outcomes such as public goods provision, and renders the inclusion of simple ELF and other cultural fractionalisation measures insignificant (Baldwin and Huber, 2010). The authors compare the effect of ethnic diversity on public goods provision across 42 countries, using a number of existing measures of ethnic diversity.[41] This study finds that BGI has a large, robust negative relationship with public goods provision, whilst no robust empirical relationship exists between either ELF or cultural fractionalisation and public goods provision. Aspects of public goods provision that are utilised in this study include health, education, infrastructure, and government's taxation capacity, similar to those included in other empirical research of this nature. Controlling for the level of economic development, measured by gross domestic product per capita, population size, and the

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[40] The fiscal surplus is measured as the total government expenditure, less education and defence spending, as a proportion of gross domestic product (Okediji, 2011).

[41] The measures included in this study are ethnolinguistic fractionalisation, between-group inequality (BGI), and a measure of cultural fractionalisation from Fearon (2003). BGI incorporates income inequality between ethnic groups into the measure of ethnolinguistic fractionalisation, whilst cultural fractionalisation incorporates linguistic similarity into the measure of ethnolinguistic fractionalisation.

level of democracy, measured by Polity 2, ELF has a large, statistically significant negative impact on public goods provision, when BGI is not controlled for. The inclusion of both ELF and BGI in the same model renders the effect of ELF insignificant. BGI has a large and significant negative impact on public goods provision in all model specifications. The overall conclusion of this study is that diversity negatively impacts on public goods provision, and that the additional income inequality component captured in BGI is better able to account for this negative relationship than ethnic diversity alone.

In conclusion, ELF has a negative, statistically significant impact on long-run economic growth, primarily through public policy and its impact on public goods provision. Polarisation, whilst highly correlated with ELF, yields weaker results when included independently in growth regressions. The simultaneous inclusion of both diversity measures within the same growth regression renders polarisation insignificant, while ELF has a negative and statistically significant relationship with long-run economic growth. Polarisation, despite having no direct effect on long-run economic growth, has a significant indirect effect through its impact on investment, civil war and government expenditure. Empirical evidence suggests that ELF does not affect economic growth indirectly via either of these mechanisms. SDI has a negative, statistically significant relationship with long-run economic growth, through its impact on educational attainment and trade openness. Although the inclusion of ELF independently in regression analysis yields the desired results, the inclusion of BGI in the same regression renders ELF insignificant. This indicates the importance of the additional income component captured in the BGI to more fully account for the observed relationship. BGI has a large, robust, negative relationship with public good provision, whilst no robust relationship exists between ELF and public goods provision.

Lastly, studies focusing on racial fractionalisation find a negative relationship between racial diversity and economic performance in the presence of barriers to communication. In addition, empirical research shows a negative relationship between racial diversity and development expenditures, whilst positive relationships exist between racial diversity and government expenditure on both policing and health care. Furthermore, racial diversity leads to higher intergovernmental transfers and higher government expenditure. Overall, the empirical literature tends to fall largely in line with the theoretical expectations with regards to the relationship between diversity and growth. There thus exists strong empirical evidence that higher levels of diversity lead to poor economic outcomes.

A common theme in the empirical literature examining the relationship between diversity and economic outcomes is the notion that diversity remains relatively constant across time. Although this notion has received criticism, to date there are few studies that examine how changing levels of diversity impact on economic growth.[42] This is likely also due to the fact that detailed ethnicity data over time are not easily available for many countries. One of the aims of this dissertation is to examine the validity of the implicit assumption that diversity remains relatively fixed over time. In addition, the empirical literature highlights a major flaw of any index that utilises religious affiliation to account for cultural grouping. The empirical evidence suggests that countries with higher religious diversity may be countries with greater levels of democratic freedoms, whilst in some countries religious homogeneity may indicate repressive, intolerant regimes rather than true homogeneity. This problem arises due to the fact that religious affiliation can be more easily altered or 'hidden' than racial and linguistic origin. Lastly, the importance of accounting for income differences between groups has been clearly highlighted in the empirical literature. It is important to understand the income classifications of different cultural groups when trying to examine the relationship between diversity and government expenditure, since a significant portion of government's expenditure is directed towards aiding the poor. If a the poor are more strongly represented in certain cultural groups, then failing to account for the income of those groups can yield misleading results with regards to the relationship between diversity and economic outcomes.

3.3 Diversity in South Africa

In order to develop expectations about diversity in South Africa, and the impact it might have on economic growth, it would be useful to examine the available evidence of diversity indices for South Africa in the empirical literature. Table 3.1 below displays the diversity indices, outlined in section 3.1, that have been published for South Africa, and compares these to the minimum and maximum values for each index across the range of countries that were included in the sample. What is initially evident from these results is that the way in which cultural groups are classified makes a substantial difference in the resulting value of the diversity index. Unfortunately, most researchers did not specify what ethnic group classifications were used in the calculation of each index, since they calculated fractionalisation measures for many countries around the world, each with differently defined ethnic groups. The social diversity index (SDI) and polarisation index have not been widely published in the empirical literature, and to date the between-group inequality index outlined in section 3.1 has not been published for South Africa. This is because these indices are primarily used as explanatory variables in regression analysis, rather than in descriptive analysis. As mentioned previously,

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[42] See, for example, Alesina *et al.,* 2003; Campos *et al.*, 2009; and Fedderke *et al.*, 2008.

fractionalisation is the predominant measure of diversity used in the literature, and ethnicity is the most broadly used classification of cultural groups. As a result, numerous calculations of ethnic fractionalisation have been published in the literature. In addition, ethnolinguistic fractionalisation has been widely used in the literature, although most researchers make use of the index calculated by Taylor and Hudson (1972) rather than performing their own calculations. Religious fractionalisation has been published, despite its lack of explanatory power as an influential factor for economic growth. Only ethnic and religious polarisation indices have been calculated for South Africa.

Table 3.1 Diversity in South Africa

Measure	Published Source	Year	Index	Low	High
Fractionalisation					
Ethnolinguistic	Taylor and Hudson (1972)	1960	0.88	0.04	0.93
Ethnolinguistic	Alesina *et al.* (2003)	2001	0.87	0.00	0.93
Ethnic	Fearon (2003)	-	0.88	0.00	0.95
Ethnic	Alesina *et al.* (2003)	1998	0.75	0.00	0.88
Ethnic	Montalvo and Reynal-Querol (2005)	-	0.44	0.01	0.96
Religious	Alesina *et al.* (2003)	2001	0.86	0.00	0.86
Religious	Montalvo and Reynal-Querol (2005)	-	0.47	0.00	0.70
Racial	Fedderke *et al.* (2008)	2001	0.36[43]	-	-
Social Diversity	Okediji (2005)	2001	0.97	0.14	0.998
Polarisation					
Ethnic	Montalvo and Reynal-Querol (2005)	-	0.72	0.03	0.98
Religious	Montalvo and Reynal-Querol (2005)	-	0.79	0.00	0.98

Source: Compiled by the author from the sources indicated.

Notes: Where year is not stipulated, the data set constructed by the authors came from numerous sources that were not all published in the same year.

In terms of ethnolinguistic fractionalisation (ELF), according to Taylor and Hudson (1972), the index was calculated to be 0.88 for South Africa. This value is not substantially lower than the largest score of 0.93 for Tanzania. Similar findings are displayed in Alesina *et al.* (2003) where South Africa's ELF of 0.87 is close to the high of 0.93 for Uganda. In addition, these indices suggest that the common assumption that diversity is fixed over time may be valid, since the value is roughly the same when calculated using data from 1960 and 2001. However, this tentative conclusion is questionable, since these indices were published by two different groups of authors who did not necessarily use the same ethnolinguistic groupings in their calculations. The results displayed for South Africa's ethnic fractionalisation differs quite substantially, due primarily to the varying definitions of ethnic groups used by the various authors. Fearon (2003)

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[43] Fedderke *et al.* (2008) calculated racial diversity only for South Africa, therefore there are no high and low indices, within the published source, with which to compare.

and Alesina *et al.* (2003) find that South Africa is highly ethnically fractionalised. These calculations are also highly reliant on linguistic groupings, much like the ELF. Montalvo and Reynal-Querol (2005), however, find that according to their calculation of ethnic fractionalisation, South Africa is not highly fractionalised, with an index value less than half the size of the maximum index value of 0.96 for Tanzania.

Although there are no racial fractionalisation indices for other countries published in the work of Fedderke *et al.* (2008), in the data used by Alesina *et al* (2003) to calculate ethnic fractionalisation, race rather than language was used as the ethnic grouping, for a range of countries.[44] The highest measures of racial fractionalisation are evident in the countries of Trinidad and Tobago, and Cuba, with indices of 0.65 and 0.59 respectively; whereas Australia displayed much lower racial fractionalisation, with an index of 0.09. Based on these racial fractionalisation indices, the empirical literature suggests moderate racial diversity in South Africa. Furthermore, racial fractionalisation in South Africa has been falling since 1980, having been relatively constant prior to that (Fedderke *et al.,* 2008).

In addition to the previous calculations of diversity measures for South Africa, a number of Studies have been carried out examining the levels of trust in South Africa.[45] Research conducted on trust in South Africa using the data from the NIDS 2008 data found that overall levels of trust in South Africa are low – with substantial racial variations, particularly when considering trust of people who live close by (Posel and Hinks, 2012). Whites are found to have a higher degree of trust of people who live close by when compared to the other racial groups. This may be due to the fact that White people tend to live in neighbourhoods with a presumed high concentration of other white people – signifying possible higher within-group trust as suggested by the theoretical literature. Racial differences in trust of complete strangers are smaller than the neighbourhood trust variation, and in this case Africans are more trusting of complete strangers than any other race group. This is likely due to the fact that the African race group makes up the majority of the population, increasing the likelihood of a complete stranger being black. This again is consistent with the theory of higher co-ethnic trust levels.

In addition to this descriptive assessment of trust between racial groups in South Africa, Posel and Hinks (2012) further control for absolute and relative income differences. Doing this drastically reduces the racial variations in trust – highlighting that the higher income of Whites, enabling them to live in more affluent neighbourhoods, accounts for the higher level of trust of

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[44] Whilst for some countries Alesina *et al.* (2003) used race, their ethnolinguistic measure for South Africa made use of linguistic groups.
[45] See, for example, Burns and Keswell, 2011; Haile *et al.* 2008*;* and Posel and Hinks, 2012.

people living in their neighbourhoods. In a similar way, individuals with higher levels of educational attainment also display higher levels of trust. This could be attributed to the notion that those with high levels of education tend to be more likely to interact with other individuals with high education, and trustworthiness and trusting behaviour is considered to increase with educational attainment (Glaeser *et al.,* 2000; Posel and Hinks, 2012). These findings are consistent with the theoretical literature regarding the relationship between diversity and social cohesion, with South Africa being considered to be socially diverse with low levels of trust. This research also shows the importance of education and policies aimed at reducing income inequality in improving social cohesion.

3.4 Public Policy in South Africa

Having outlined various measures of South Africa's diversity available in the current literature, the following discussion will provide a narrative of the various policies that have been developed in South Africa that are particularly relevant to the presence of diversity. Amongst the numerous policies that have been implemented in post-apartheid South Africa, a few stand out as being particularly aimed at redressing the socio-economic inequalities caused by the apartheid regime, and attempting to improve the level of social capital in the country, and ultimately improve growth prospects for the country. These include the Reconstruction and Development Programme (RDP) developed in 1994, Affirmative Action (AA) as outlined in the Employment Equity Act No. 55 of 1998, the Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000, and the Broad-based Black Economic Empowerment (B-BBEE) Act No. 53 of 2003. Reviewing the aforementioned policies aims to indicate whether South Africa's government has put in place policies and frameworks to reduce the impact of its high diversity. The national planning commission's diagnostic report will also provide insight into how effective these policies have been in improving standards of living in South Africa.

At the end of apartheid, South Africa was a country with areas of abject poverty and degradation existing alongside well established cities, and developed infrastructure in the mining, industrial and commercial sectors. The country's income distribution was recognised as one of the most unequal in the world (Republic of South Africa, 1994). Given that South Africa's past is one marred by colonial rule, with unfair labour practices and policies that encouraged prejudice, racism and sexism, the democratic South African government recognised the need for a transformation strategy that would mobilise the country's resources towards the eradication of apartheid (Republic of South Africa, 1994). It was to this end, that the RDP was developed, with the goal of building a democratic, non-racial and non-sexist society. The RDP

was published as a White paper – the first of many policies aimed at reducing the inequalities and tensions that existed in the country.

The RDP provides a summary of where cultural tension and divisions were created during apartheid. Firstly, racial divisions were systematically enforced in all spheres of the economy, including education, health care, transport and employment. Secondly, the division of rural areas into homeland territories for the eight African tribal ethnic groups created some ethnic divisions amongst the tribes (Republic of South Africa, 1994). However, the fact that the Whites lived in well-developed cities, towns and commercial farming areas, with superior access to goods and services, whilst Africans, Coloureds and Indians were forced to live in rural and run-down areas with poor access to goods and service, resulted in much stronger racial division (Republic of South Africa, 1994).

One of the primary basic principles of the RDP was the need to meet the basic needs of the people and develop infrastructure. It identified the need to provide modern and effective services, including electricity, water, transport, health and education, for all South Africans. It was proposed that meeting the basic needs of the people would enhance the economic and human potential that was suppressed under the apartheid regime (Republic of South Africa, 1994). The hope was to increase economic output, in all sectors of the economy, and enhance exporting capabilities. A key area that the RDP recognised, as an important facet of the programme, was the importance of human resources development. Education provision, under the apartheid government was extremely unequal, and the syllabus of black and White students differed significantly, given that the law constrained the job potential of black citizens (Republic of South Africa, 1994).[46] In order to develop human resources, there was a need to identify which skills had been previously disregarded in black education, and put in place programmes to ensure that the necessary training was available to provide individuals with these skills, in order to ensure equal opportunity for all citizens. The goal of human resources development was not only to provide education and training to all South Africans, but to abolish discrimination on the basis of race, class and gender, in an attempt to harness the creative capacity of South Africa's diverse society.

In order to achieve the goals of the RDP set out in 1994, South Africa's government would need to increase expenditures – particularly development expenditures. At this time, the South African government had a large fiscal deficit, which did not facilitate an easy increase in government expenditures (Republic of South Africa, 1994). Instead, the government committed

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[46] The term "black" is the generic term for African, Coloured and Indian people.

to the gradual reduction of the fiscal deficit, through a reduction in consumption expenditures Furthermore, it committed to financing the RDP through restructuring and shifting of the national, provincial and local government budgets towards the necessary areas of development expenditure. The intention to reduce consumption expenditure and increase development expenditures would not be easy to achieve, particularly because remunerations made up 60 percent of total consumption expenditure in 1994. Reducing consumption expenditure significantly would have required that the number of public employees decreased – a difficult task considering that the government simultaneously aimed to hire previously disadvantaged individuals to ensure equality and representation of all groups within the public sector (Republic of South Africa, 1994). This explains why it was difficult for government to reduce consumption expenditure very rapidly, and it took time to mobilise the desired funds to increase development expenditures.

The Employment Equity Act No. 55 of 1998 recognised that as a result of apartheid and its discriminatory laws and practises, there were significant disparities in employment, occupation and income in the South African labour market (Republic of South Africa, 1998). These disparities created pronounced disadvantages for certain groups which could not be rectified simply by repealing the past discriminatory laws. As a result, affirmative action was incorporated as part of the Employment Equity Act in order to ensure that individuals from designated groups were given equal opportunity in the workplace (Republic of South Africa, 1998).[47] Affirmative action aimed to create a labour market with equal representation of all groups in all job categories and levels in the workplace.

According to the Employment Equity Act, affirmative action applied only to designated employers, and was voluntary for all other employers.[48] Designated employers are required to identify and eliminate employment barriers that might restrict members from previously disadvantaged groups from obtaining employment (Republic of South Africa, 1998). In addition, employers are expected to ensure that all individuals share the same dignity and respect, in order to support workforce diversity. This legislation was designed to ensure that designated groups, who lacked formal education and experience due to the fact that were previously not permitted to obtain certain jobs, were no longer discriminated against and were

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[47] The term "designated groups" refers to black people, women and people with disabilities.
[48] The term "designated employer" refers to: employers who employ more than fifty employees; those who employ fewer than 50 employees, but with an annual turnover equal to or above the applicable annual turnover outlined in Schedule 4 of the Act; municipalities; organs of state – except for local spheres of government, the National Defence Force, The National Intelligence Agency and the South African Secret Service; and all other employers bound by collective agreements in terms of sections 23 and 31 of the Labour Relations Act.

provided the same opportunities as their better-educated and more experienced White counterparts.

Despite the progress that was made in transforming and restructuring South Africa's society as well as formal institutions, systematic and unfair discrimination remained deeply embedded in the country's social structures, practices and attitudes in 2000 (Republic of South Africa, 2000). This gave rise to the development of the Promotion of Equality and Prevention of Unfair Discrimination Act No. 4 of 2000, which provides guidelines to educate the public, and create awareness about the importance of equality and the need to overcome unfair discrimination, hate speech and harassment. Furthermore, this Act prohibits the advocacy of hatred based on race, ethnicity, gender or religion (Republic of South Africa, 2000). The primary focus of this Act is on reducing racial and gender discrimination – indicative of the tensions that exist along racial lines in South Africa.

In 2003, yet another Act was instituted in an attempt to contribute to South Africa's economic transformation process. The Broad-Based Black Economic Empowerment (B-BBEE) Act aimed to increase the number of black individuals managing, owning and controlling South Africa's economy, ultimately reducing income inequality (Republic of South Africa, 2004). As mentioned previously, control and access to South Africa's productive resources and skills during apartheid was in the hands of the White population. The establishment of this Act was based on the foundation that, almost 10 years after the new democracy, the economy still excluded the majority of the previously disadvantaged from ownership of productive assets and the development of advanced skills, and consequently the economy was not performing to its full potential and exhibited stubbornly high levels of inequality, despite the legislation previously discussed.

Overall, the policies and laws instituted since 1994 highlight that South Africa is a country divided severely along racial lines, with large income inequalities, as well as inequality in access to basic goods and services. It is evident that government is aware of the problems that exist; however, this brief review of government's various attempts to achieve the same outcome suggests that these policies and laws are either not being implemented effectively or simply not achieving their goals. The literature reviewed in Chapters Two and Three suggested that the problems caused by ethnic diversity are particularly severe in the presence of discrimination and socioeconomic inequalities (Alesina and Perotti, 1996; Okedigi, 2008). The empirical work in Chapters Four and Five will thus undertake to assess more clearly whether racial and other disparities in economic inequality have fallen over time, and to what extent government has met

the basic needs of the South African citizenry, as a means of evaluating the potential impacts of diversity on South Africa's economy.

3.5 Conclusion

In light of the discussion in Chapter Two regarding the role that culture and cultural diversity play in the economic growth prospects of a country, as well as the numerous measures of diversity used in the literature to account for such effects, one needs to draw some conclusions regarding which measures to use in empirical analysis. From the discussion thus far it is clear that the salience of cultural groups does matter in terms of their potential to create conflict within a society, which ultimately has negative effects on policymaking, hampering economic growth. Although data on ethnolinguistic fractionalisation are available for most countries in the world, it is a highly flawed measure of social diversity, as it lacks additional relevant information (like education, income or socio-economic status) which might better signal the potential for group-based conflict. By comparison, the SDI is better able to account for additional cultural attributes, yet suffers the same flaw of lacking additional factors such as economic well-being information. The BGI contains the valuable attribute of economic well-being, yet does not account for the full complement of cultural attributes, focusing primarily on ethnic classification. EP focuses mainly on the degree to which a society is polarised in terms of ethnic groupings, but its major flaw, as with the ELF, is that it focuses primarily on ethnic classification, and contains no other cultural or economic attributes which might account for diversity between groups.

This chapter has highlighted that internationally, South Africa is often considered to be a highly diverse nation, primarily based on relatively high linguistic fractionalisation, but also due to the social divides, and inequalities that have become entrenched as a result of the apartheid regime. In addition to high levels of diversity, levels of trust amongst South Africans is low, with high levels of racial variation attributed to educational and socio-economic differences between race groups. Furthermore, South Africa's government has recognised the existence of inequality and has designed a number of policies aimed at rectifying this inequality, and ultimately the negative impacts of diversity. Chapter Four assesses the various data sources that are available for South Africa to identify comparable data sources at different points in time that will allow the examination of how diversity has changed in South Africa, as well as assessing levels of trust, and access to public goods and basic necessities over time. Having identified the available data sources that can help shed light on these factors, Chapter Four will provide the descriptive statistics for the cultural attributes, and income distribution to be used to measure diversity.

CHAPTER FOUR: DATA AND DESCRIPTIVE STATISTICS

Given that this dissertation aims to measure the degree of fractionalisation in South Africa using the various indices discussed in the previous chapter, data sources need to be chosen that will best meet the requirements of calculating these indices. Therefore the data sources need to contain individual level data on factors such as race, religion and language, as well as some form of income information. These data need to be as detailed as possible, in order to capture the diverse nature of peoples' cultural attributes. In addition to the data required to calculate the diversity indices, the data sets need to contain additional information in order to assess whether high diversity is in fact combined with low levels of trust, poor public goods provision, lower levels of education and barriers to communication. It is also necessary to find comparable datasets at different points in time to examine changes, evaluate the effectiveness of government policy, and indicate whether cultural diversity is being properly managed in South Africa. For the indices and other descriptive statistics to be useful, and comparable across time, the data sources need to be compiled from nationally representative samples of the South Africa population.

Section 4.1 of this chapter will outline some of the data sources available in South Africa, as well as the limitations thereof, in order to justify the use of the Project for Statistics on Living Standards and Development (PSLSD) data collected in 1993, the Afrobarometer surveys from 2004 and 2008, and the National Income Dynamics Study (NIDS) data collected in 2008. Since these data sources form the foundation of the quantitative analysis of this dissertation, section 4.2 of this chapter will provide a more detailed overview of each of them. This will include discussion regarding the sampling, data collection, and weighting techniques used in the collection of each data source, as well as consideration of the validity and reliability of the data. Some special considerations worth noting in the data will also be outlined. Finally, section 4.3 will present and discuss summary statistics on the key variables of interest from each survey, in order to provide some context for the diversity indices that will be estimated in Chapter Five.

4.1 Available Data Sources

Statistics South Africa (StatsSA) began conducting detailed nationally-representative household surveys in the early 1990s. These surveys generally collect information about employment status, earnings and other characteristics that are primarily focused on the South African labour market, as well as more general individual and household information. The StatsSA data sources available at the time this dissertation was initiated include the October Household

Surveys (OHS), the Labour Force Surveys (LFS), the Income and Expenditure Surveys (IES), and the General Household Surveys (GHS). Additional nationally representative surveys have been conducted by other institutions such as the Southern Africa Labour and Development Research Unit (SALDRU) based at the University of Cape Town, which has published data from the Project for Statistics on Living Standards and Development (PSLSD) in 1993 as well as data from the National Income Dynamics Study (NIDS) in 2008, 2010/11 and 2012/13. The Institute for Democracy in South Africa has also published survey data known as the Afrobarometer every two years from 2000 through to 2008.

The OHS was the first nationally-representative household survey conducted by StatsSA, and was conducted annually from 1993 through to 1999. This survey focused on collecting data such as labour market participation and earnings, education, and access to public services in South Africa. The OHS was replaced in 2000 by the LFS which was collected biannually until 2008 and quarterly thereafter. This survey focused on collecting data regarding labour market issues. The IES collected more detailed income and expenditure data than that captured in the OHS and LFS, and was only collected at five-year intervals for 1995, 2000 and 2005/2006. Other non-labour market topics were covered in the GHS which released its first dataset in 2002, and the survey has been conducted on an annual basis since then.

Unfortunately, none of these data sources are able to satisfy the requirements of this dissertation. All of these surveys collected some data on living standards and access to basic goods and services. Language information was collected in the OHS's from 1996 onwards, in all of the LFS's, but not at all in the IES's or GHS's. However, none of these data sources collected religion information, which is necessary to measure the full extent of cultural diversity in South Africa. They therefore cannot be used to achieve one of the key objectives of this dissertation. In addition, with the exception of the IES, these data sources primarily collect data on labour market income, and not on other sources of income. Although the OHS, LFS and GHS enquire about whether individuals are receiving government grants, and whether this is the main source of income, respondents are not asked to quantify the value of this source of income. Other sources of income were also not collected. In a country like South Africa, with high unemployment, it is likely that many households do not rely on labour market earnings alone. Therefore, in the calculation of the between-group income inequality, the ability to derive a more complete measure of income would be desirable. Lastly, these data sources lack information that can offer insight into the effects of diversity such as data on trust as well as data on the ability to communicate in English. However, this is not surprising, as this type of data is often not readily available. Since these data sources are not capable of fulfilling the data

requirements of this dissertation, they could not be utilised. Fortunately, the PSLSD, the NIDS and the Afrobarometer surveys were able to overcome the shortfalls of the OHS, LFS, IES and GHS. The next section will outline the data sources that have been selected for the purposes of this dissertation.

4.2 Motivation for choice of data sources

4.2.1 PSLSD

The Project for Statistics on Living Standards and Development (PSLSD) was a World Bank Living Standards Measurement Survey overseen by the Southern Africa Labour and Development Research Unit (SALDRU), and conducted during the nine months prior to South Africa's first democratic elections in early 1994. From a representative sample of South African households, the survey interviewed roughly 9 000 households. It aimed to collect statistical information about the socio-economic conditions of South African households in order to provide policymakers with the necessary data to devise new policies for post-apartheid South Africa. Furthermore, being one of the first cross-sectional household surveys conducted in South Africa, the survey itself has served as a benchmark for later studies.

The sample design was a two-stage self-weighting design, whereby the first stage units of the sample were 1991 Census enumerator sub-districts, and then the second sampling stage involved applying systematic sampling to individual households within each first stage unit.[49] The primary objective of sample selection was to ensure that the racial and geographic distribution of the sample was approximately the same as the national population distribution. The reason for using this sample design was that it would provide a representative sample that need not be based on accurate census population distribution. Since this survey was primarily a household survey, only one person in each household was interviewed, although information was collected on behalf of each household member (SALDRU, 1995a).

Data were collected by conducting face to face interviews with selected households, but a number of problems arose. In some areas, excessive violence and unrest prevented surveys from being conducted. In addition, there were particularly high refusal and absenteeism rates amongst the White population leading to severe under-representation in the sample (SALDRU, 1995a). Given the important role of racial distribution in determining living standards and measuring inequality in South Africa, it was necessary to apply weights to the data to overcome the aforementioned difficulties in the data collection process, in order to ensure that this sample is closely representative of the South African population (SALDRU, 1995a).

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[49] Detailed information on PSLSD sampling procedures are available at www.datafirst.uct.ac.za.

The PSLSD was the earliest and most comprehensive household survey that assessed living standards of all South Africans in late 1993, and it included questions regarding access to education, water, electricity and sanitation. In addition, information regarding race and language group was also collected, which is necessary to calculate indices of diversity. It is thus used as a benchmark, as the questions asked in the PSLSD were also similar to those asked in other later nationally representative surveys such as the Afrobarometer and the NIDS which allows for comparability across time.

4.2.2 NIDS

The National Income Dynamics Study (NIDS) is a longitudinal study conducted by SALDRU and commenced in 2008, with the goal of tracking changing standards of living in South Africa. This was to be done by interviewing approximately 7 300 households and 28 000 individuals, that were representative of the broader South African population, over a period of years. This study is the first national panel study of study of households undertaken in South Africa that collects a broad range of data regarding household and family structures, income and expenditure patterns, and access to basic services. In addition to the household level data, NIDS collects individual level data including basic demographic information such as race, home language and religion.

Three waves of NIDS data have been collected thus far. Since the primary purpose of this dissertation was to assess the nature of diversity, and examine how it has changed over time, it would not have been useful to use the NIDS panel in the analysis, as cultural diversity is likely to remain constant within the short period of the panel. The panel data could have been useful in assessing the efficacy of government policy in improving living standards for the same group of individuals over time, with a given level of cultural diversity. Unfortunately, the second and third waves of the NIDS were not yet available at the time this research commenced, and thus this study makes use only of wave 1.

The sample design used in the collection of the NIDS wave 1 data was a stratified, two-stage cluster sample design.[50] The sample universe included private households across South Africa, as well as individuals residing in worker hostels, convents and monasteries (Leibbrandt *et al.*, 2009). The NIDS survey included a household component as well as an individual component, where information was gathered on all individuals within each household.

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[50] Detailed information on NIDS sampling procedures are available in Leibbrandt *et al.* (2009).

In line with the PSLSD survey the NIDS data were also collected through face-to-face surveys. After data collection, it was found that the sample was not representative with respect to province, race, gender and age due to over- and under-representation of certain groups during the data collection process (Wittenberg, 2009). The NIDS data have been weighted for the age, gender, and racial distributions of the 2008 mid-year population estimated, and for provincial totals, in order to account for these shortfalls. This is necessary in order to draw any conclusions about the South African population.

4.2.3 Afrobarometer

The Afrobarometer surveys are a series of surveys that collect information regarding views on democracy, economic reform, the state of civil society and the standards of living in democratic African countries.[51] Afrobarometer has conducted surveys in South Africa every second year since 2000, with the 2008 data being the most recent data released when this research commenced.[52] From a representative cross-section of individuals of voting age, approximately 2 400 individuals were interviewed in each round of surveys.[53] The goal of the Afrobarometer sample design is to ensure that individuals are randomly selected in order to give every adult equal chance of being selected for interview, and having their views represented (Afrobarometer, nd). In addition to the attitudinal data of surveyed individuals, the survey also collects the basic demographic data necessary to measure diversity.

The Afrobarometer uses a clustered, stratified, multi-stage, probability sample design. The sample was stratified according to provincial and urban-rural classifications.[54] The sample includes only South African citizens, and individuals who are 18 years or older on the day of the survey. Each individual who was interviewed was asked questions regarding their household access to basic service, similar to the questions asked in the PSLSD household survey, and the NIDS survey.

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[51] Afrobarometer is a collaborative research project carried out through a partnership of the Institute for Democracy in South Africa, the Institute for Development Studies at the University of Nairobi, the Institute for Empirical Research in Political Economy, and the Centre for Democratic Development in Ghana, and surveys are conducted in multiple African countries.

[52] The data from the 2011 round of the Afrobarometer surveys has since been released.

[53] Since the Afrobarometer only interviewed individuals of voting age, the PSLSD data as well as the NIDS data have also been restricted to consider only individuals older than 18 years to maintain comparability.

[54] Detailed information on Afrobarometer sampling procedures are available on their website www.afrobarometer.org.

Data for the Afrobarometer surveys were also collected using face-to-face interviews, and due to the sampling methodology the data should be self-weighting.[55] Despite this, there were problems with over- and under-sampling. Prior to the Round 4 surveys collected in 2008, the data was only weighted to account for over-sampling of certain regions or population groups. Since Round 4, weighting has also taken into account individual selection probability at the level of the primary sampling units. The Afrobarometer Round 2.5 survey which took place in 2004 was weighted to account for over- and under-samples with respect to province and race (Kirwin, 2007). The Round 4 survey which took place in 2008, however, did not weight to correct for sampling errors with respect to race, and instead, weighted to correct for province, gender, and urban-rural geographic location sampling errors (Carter, 2010). The data would need to be weighted in order for any quantitative results to be considered truly nationally representative. However, the different weighting strategies of these two rounds of the survey may compromise comparability.

One of the greatest difficulties with the Afrobarometer surveys is that the questionnaires were adjusted from one round to the next. This makes it difficult to compare the answers to some of the questions across the different years. Nonetheless, one of the primary reasons for selecting the Afrobarometer surveys were that questions were asked about their levels of trust towards people in their own ethnic group, towards people in other ethnic groups, as well as towards South Africans in general. This type of information is useful, as mentioned in the literature, to gain an understanding of the relationship between diversity and trust. Furthermore, the Afrobarometer collects information on self-identified ethnicity, rather than just race, language and religious information.

The reason for choosing the 2008 Afrobarometer was partly because this data source offered some additional insight that the NIDS could not. Since it was collected at roughly the same time as wave 1 of NIDS, it was also used in an attempt to assess whether the data collected in the Afrobarometer surveys was in fact comparable with the data collected in the NIDS despite the substantially smaller sample size. In order to gain an understanding of how diversity has changed over time, it would be useful to look at more than just two points in time. Since the PSLSD provided an understanding of diversity in 1993 at the fall of apartheid and the NIDS from 2008 is the most recent national survey providing a more current overview of living standards, it was necessary to find a data source that offered similar information somewhere in

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[55] Despite this self-weighting design, the data are weighted to be representative of the South African population through a within sample weight. This means that instead of weighting and expanding up to population size – as is done with PSLSD and NIDS – the Afrobarometer weighting adjusts within the sample to be proportionate to the South African population.

between that period. The Afrobarometer surveys offered this. The 2004 Afrobarometer survey was then selected rather than the 2000 and 2002 surveys due to the fact that the questions asked in the earlier surveys differed quite substantially and were not as easily comparable with the 2008 survey.

4.3 Variables of interest and descriptive statistics

The four data sources discussed above will be used to conduct the quantitative analysis of this dissertation. This section will display some descriptive statistics pertaining to the data that are used to calculate the diversity indices outlined in Chapter Two. The following chapter will then discuss the diversity indices themselves, as well as relating these to the data on trust, and access to basic services.

4.3.1 Cultural Attributes

As discussed in Chapter Two, culture is generally measured according to characteristics such as race, language and religion. Before measuring the various diversity indices it is therefore useful to assess the distribution of these characteristics individually, and how they have changed over time, in order to better understand the meaning behind the indices which will be measured in the next chapter.

Table 4.1 below illustrates the racial distribution of the adult population in South Africa in 1993, 2004 and 2008 using the aforementioned survey data.[56] As previously discussed, there are some differences in the results obtained from the Afrobarometer 2008 and the NIDS 2008, mainly that NIDS identifies more Coloured and fewer African individuals, likely due to the different sampling and weighting methodologies, and also possibly due to measurement error. Nevertheless the overall racial distribution and changes across time remain relatively consistent. There has been considerable growth in the African population, South Africa's largest group, from 70.5 percent of the total population in 1993 to 75.9-77.9 percent in 2008, as well as moderate growth in the Coloured population, from 8 percent in 1993 to 8.4-9.6 percent in 2008. In contrast, the White population has diminished quite substantially from 18.9 percent in 1993 to just 11.2-11.6 percent in 2008. The proportion of Indians in South Africa remains relatively unchanged across time. It must be noted that despite the fact that the overall population of Indians in South Africa appears proportionately low, this population group is highly concentrated in certain geographic areas – particularly the province of KwaZulu-Natal – and are therefore still important to consider in the calculation of diversity indices.

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[56] Respondents who reported "Other" as their race group were excluded from the analysis. Such individuals typically amount to less than 0.1 percent of respondents in each data source.

Table 4.1: Racial Distribution in South Africa

Race Group	PSLSD 1993	AFRO 2004	AFRO 2008	NIDS 2008
African	0.705	0.783	0.759	0.779
	(0.005)	(0.009)	(0.009)	(0.006)
Coloured	0.080	0.091	0.096	0.084
	(0.003)	(0.006)	(0.006)	(0.004)
Indian	0.026	0.029	0.029	0.025
	(0.002)	(0.003)	(0.003)	(0.003)
White	0.189	0.097	0.116	0.112
	(0.005)	(0.006)	(0.007)	(0.006)
Sample	8 809	2 396	2 394	13 969
Population	9 093 334	-	-	24 853 985

Source: Own calculations, PSLSD 1993, Afrobarometer 2004, Afrobarometer 2008, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

The linguistic distribution in South Africa in 1993, 2004 and 2008 is displayed in Table 4.2 below. This table summarises the home language of South Africans, and only considers the eleven official languages of South Africa.[57] In 1993, the dominant linguistic groups were isiZulu, isiXhosa and Afrikaans, each accounting for over 15 percent of South Africa's adult population. English, Setswana, Sepedi and Sesotho speaking groups each made up between 8.3 and 12.4 percent of the total adult population. Tshivenda, Xitsonga, sisSwati and isiNdebele speaking groups, combined, made up less than 10 percent of South Africa's total population. By 2008, with a 5.3 percentage point increase, isiZulu has emerged as the predominant language in South Africa, spoken by 23 percent of the adult population, according to the NIDS data. In line with the growth in the African population, in the increase in the proportion of isiZulu speaking people was accompanied by a smaller increase in isiXhosa speaking people from 16.5 percent to 16.9-17.8 percent. Given that the two main languages spoken the South Africa's White population are English and Afrikaans, it is consistent with the decline in the White population by 2008 there has been a concurrent decline in people speaking English as a home language from 12.4 percent to 8.7-9.9 percent, as well as the Afrikaans from 17.4 percent to 13-15.4 percent. The other African language groups have remained relatively constant across time, with

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[57] Individuals who reported speaking a language that is not one of the eleven official languages were excluded from the analysis, as in all data sources they made up a miniscule proportion of the population. Specifically, 0.54 percent of the adult population in the PSLSD, 0.17 percent of the Afrobarometer 2004, 0.29 percent of the Afrobarometer 2008 and 0.66 percent of the NIDS reported their home language to be a non-official language.

Setswana, Sepedi and Sesotho each accounting for roughly 10 percent of the population, and Tshivenda, Xitsonga, siSwati and isiNdebele each accounting for roughly 1-4 percent of the population.

Table 4.2: Linguistic Distribution in South Africa

Linguistic Group	PSLSD 1993	AFRO 2004	AFRO 2008	NIDS 2008
English	0.124	0.098	0.087	0.099
	(0.004)	(0.006)	(0.006)	(0.005)
Afrikaans	0.174	0.127	0.154	0.130
	(0.004)	(0.007)	(0.008)	(0.005)
isiXhosa	0.165	0.176	0.169	0.178
	(0.004)	(0.010)	(0.009)	(0.005)
isiZulu	0.177	0.234	0.252	0.230
	(0.004)	(0.010)	(0.012)	(0.005)
Setswana	0.093	0.075	0.087	0.077
	(0.003)	(0.006)	(0.007)	(0.003)
Sepedi	0.091	0.088	0.081	0.103
	(0.003)	(0.007)	(0.007)	(0.004)
Sesotho	0.083	0.094	0.069	0.098
	(0.003)	(0.008)	(0.007)	(0.004)
Tshivenda	0.013	0.016	0.027	0.015
	(0.001)	(0.003)	(0.004)	(0.001)
Xitsonga	0.043	0.046	0.038	0.032
	(0.002)	(0.006)	(0.005)	(0.002)
siSwati	0.027	0.016	0.023	0.024
	(0.002)	(0.003)	(0.003)	(0.002)
isiNdebele	0.010	0.028	0.012	0.013
	(0.001)	(0.004)	(0.002)	(0.001)
Sample	8 765	2 395	2 385	13 712
Population	9 043 945	-	-	24 138 667

Source: Own calculations, PSLSD 1993, Afrobarometer 2004, Afrobarometer 2008, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

Given that the Afrobarometer did not weight their 2008 data according to the racial distribution in South Africa, it is not surprising that the results appear inconsistent across the two 2008 data sets, since there is a strong correlation between language and race in South Africa. Furthermore, the Afrobarometer surveys are made up of much smaller sample sizes, and over- or under-sampling of particular groups would result in considerable differences once weights are applied to the data. For example, it appears that the Sesotho speaking group has been under-represented, and the Setswana group over-represented in the Afrobarometer 2008 survey. Despite these

downfalls of the Afrobarometer 2008, the overarching conclusion with regards to the linguistic distribution is in line with the other data sets.

As discussed previously, some researchers suggest allowing individuals to self-identify their ethnic group. This allows individuals to report the ethnic characteristic which best describes the group they identify with, rather than forcing them to choose from a predefined list. In the Afrobarometer surveys in 2004 and 2008, individuals were asked "*What is your tribe? You know, your ethnic or cultural group*". The results of this question, displayed in Table 4.3, are largely consistent with what has been found in the literature – individuals tend to define their ethnicity by their linguistic group. This is particularly the case in the African race group, whose linguistic groups have deeply rooted tribal ties. Also in line with the literature is the fact that a small number of respondents indicated their religion as their ethnicity. These individuals are therefore included in the "Other" category. In 2004, the largest 'ethnic' group was Zulu, followed by Xhosa, consisting of 21.9 and 16 percent of the adult population respectively. The Pedi, Sotho and Tswana groups were similar proportions to those reported in the linguistic distributions in table 4.3, each making up slightly less than 10 percent of the adult population in South Africa. In contrast, almost all of the Indian population selected their race as their ethnic group, and less than half of the Coloured population selected their race as their ethnicity. A large proportion of the English and Afrikaans speaking groups did not select their language as their ethnic group, and instead selected their racial group, their tribal group, or their nationality as their ethnicity. In fact, approximately 13 percent of the population responded that their ethnic group is South African – rather than identifying themselves through their racial or linguistic groups – making them the third largest self-reported ethnic group in South Africa in 2004. In 2008 there was no substantial change in the distribution of self-identified ethnicity in South Africa. The only notable change is the higher number of Afrikaans speaking individuals self-identifying themselves as Afrikaners. This, however, could be a result of a slight over-sampling of Afrikaans individuals in the 2008 survey, which is also suggested by the slightly higher proportion of the South African adult population in the Afrikaans linguistic group in table 4.2.

Table 4.3: Self-identified Ethnic Distribution in South Africa

Ethnic Group	AFRO 2004	AFRO 2008
English	0.027	0.029
	(0.004)	(0.003)
Afrikaner	0.051	0.085
	(0.005)	(0.006)
Ndebele	0.016	0.012
	(0.003)	(0.002)
Xhosa	0.160	0.150
	(0.009)	(0.009)
Pedi	0.079	0.066
	(0.007)	(0.006)
Sotho	0.084	0.074
	(0.007)	(0.007)
Tswana	0.070	0.085
	(0.006)	(0.007)
Shangaan	0.040	0.039
	(0.006)	(0.005)
Swazi	0.025	0.020
	(0.004)	(0.003)
Venda	0.016	0.019
	(0.003)	(0.004)
Zulu	0.219	0.220
	(0.010)	(0.011)
White/European	0.007	0.003
	(0.002)	(0.001)
Coloured	0.037	0.046
	(0.004)	(0.004)
Indian/Asian	0.020	0.022
	(0.002)	(0.003)
South African Only	0.133	0.131
	(0.008)	(0.009)
Other	0.016	0.000
	(0.003)	(0.000)
Sample	2 379	2 361

Source: Own calculations, Afrobarometer 2004, Afrobarometer 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

Although religious diversity has not been a major focus in the recent literature on the economic effects of diversity, South Africa is a country with a number of different religious groups. Data on religion was not collected at the individual level in the PSLSD survey, and is therefore reported only for the two Afrobarometer surveys, and the NIDS. The definitions of religious

groups in the Afrobarometer surveys were disaggregated into different denominations for each of the groups shown in Table 4.4.[58] These have been aggregated in order to compare results with the NIDS data which only allowed for the religious groupings shown below. In 1993, 72.3 percent of the adult South African population identified themselves as being Christian and 19.5 percent reported to not belong to any religious group. Islam, Hinduism and African Tribal groups made up 1.6, 1.5 and 2 percent of the total adult population respectively, whilst 3.2 percent of South African adults reported to belong to other religious groups. In 2008, according to NIDS, the greatest number of individuals reported that they were Christians, whilst only 10 percent reported not to belong to any group. In each survey, a substantial majority of South Africans identify themselves as being Christian. These results were not as substantial in the Afrobarometer survey. A much larger proportion of the population reported to practice African Tribal religions, which are likely individuals who previously had reported to belong to an 'other' religious group. Furthermore the proportion of South African adults belonging to an 'other' religious group fell substantially from 3.2 percent to just 0.5 percent, according to the NIDS data. This result is not consistent in both the NIDS and Afrobarometer 2008 data, likely due to the relatively poor sampling and weighting techniques employed in the Afrobarometer data. The proportion of the population within the Muslin and Hindu religious groups remains consistent across data sources, with each group each accounting for less than 2 percent of the population in both 2004 and 2008.

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[58] The full list of religious denominations included in the Afrobarometer surveys can be found in the data appendix. The respondents of the 2004 survey fell into 17 different religious groups that fell within the 6 main groups, and 30 different groups in 2008.

Table 4.4: Religious Distribution in South Africa

Religious Group	AFRO 2004	AFRO 2008	NIDS 2008
None	0.195	0.167	0.102
	(0.010)	(0.010)	(0.004)
Christian	0.723	0.759	0.824
	(0.011)	(0.011)	(0.005)
Muslim	0.016	0.019	0.010
	(0.003)	(0.003)	(0.002)
Hindu	0.015	0.010	0.013
	(0.002)	(0.002)	(0.002)
African Tribal	0.020	0.009	0.046
	(0.003)	(0.003)	(0.003)
Other	0.032	0.036	0.005
	(0.004)	(0.005)	(0.001)
Sample	2 378	2 355	13 900
Population			24 717 799

Source: Own calculations, Afrobarometer 2004, Afrobarometer 2008, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

4.3.2 Income Distribution and Well-being

In addition to the use of cultural attributes to account for cultural diversity, the importance of income distribution, and particularly income inequality between different cultural groups has also been highlighted as an important factor to consider when measuring diversity (Baldwin and Huber, 2010). Table 4.5 below displays average household income per capita for each race group using the PSLSD and the NIDS data in 2008 Rands.[59] Unfortunately the Afrobarometer surveys did not collect any comprehensive income data, and thus these datasets are excluded here. Since the measurement of income in 1993 and 2008 was in nominal terms, the 1993 PSLSD data were inflated using CPI in order to compare income in real terms in 2008 Rands. In 1993, mean income per capita was R1770. The White population had mean incomes per capita of approxiamtely R5334, substantially higher than the average mean income per capita, and more than 6 times higher than the income per capita of the African population. The Indian population had per capita mean incomes of approximately R2391. Coloureds and Africans had mean incomes per capita below the average, of approximately R1301 and R844 per capita respectively. This highlights the extreme racial inequality of income in 1993, and the well

[59] Household income includes, amongst others, labour market earnings, earnings from self-employment, social grants, subsidies and imputed income from agricultural activities. The non-labour market components are particularly important for the purposes of this dissertation, since income is being used as an indicator of well-being. Furthermore, a substantial number of households rely on non-labour market income as a substantial component of total household income. More details on the income components used to calculate household income per capita can be found in the data appendix.

established notion in South Africa that the Indian group were not as disadvantaged as their Coloured and African counterparts. Fifteen years later, in 2008 Whites and Indians still earned considerably more than their Coloured and African counterparts, whose mean incomes per capita fell well below the average mean income per capita. Analysis of the percentage change in mean income per capita for each race group highlights another interesting fact. Since that fall of apartheid, Indians managed to increase their mean income per capita more noticably than any other previously disadvantaged group. The mean incomes per capita of Africans and Whites grew by roughly the same amount, whilst growth in Coloured mean per capita income grew by just 42 percent in real terms over the fifteen year period. Average income increased overall, but by less than the increase for each race group, due to the considerable decline in the White (wealthiest) population group. Overall, what is evident is that there were very substantial differences in income between the different race groups in 1993, and whilst some notable improvement in income inequality is seen in the Indian race group, severe income inequality still persisted in 2008.

Table 4.5: Mean Income Per Capita in South Africa, by Race Group (2008 Rands)

	PSLSD 1993	**NIDS 2008**	**Percentage change**
All	1770.00	2419.16	36.7
	(44.698)	(125.131)	-
African	844.68	1386.04	64.1
	(14.029)	(63.859)	-
Coloured	1301.12	1847.55	42.0
	(55.572)	(143.038)	-
Indian	2391.17	4880.45	104.1
	(228.616)	(959.064)	-
White	5333.90	8535.89	60.0
	(200.126)	(706.684)	-
Sample	8 809	7 261	
Population	9 093 334	13 571 728	

Source: Own calculations, PSLSD 1993, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

In addition to the use of income, overall well-being can also be used to indicate how well-off individuals are, and to proxy for the overall quality of life. As mentioned above the Afrobarometer surveys did not collect information on income, but they did ask respondents to rate their perceived well-being on the basis of a number of classifications, which have been combined into one value to indicate average well-being. These classifications include access to food, water, medicine, fuel for cooking, and cash income. Each of these were rated on a five-

point scale from zero to four, and were aggregated to create the overall well-being indicator which thus ranges from zero to twenty.[60] Table 4.6 below displays average well-being for each race group using the Afrobarometer data from 2004 and 2008. In 2004, according to the Afrobarometer there was little substantial difference in the average well-being of the White, Indian and Coloured race groups, whilst Africans reported much lower average Well-being. By 2008, there was little change in the overall average well-being distribution. White people on average reported higher average well-being, as did Africans. There was almost no change in the reported average well-being of Indians, and Coloureds were the only group to report lower average well-being in 2008. Whilst the use of perceived average well-being, rather than mean income, suggests lower racial inequality overall, it also shows little improvement over time. However, this comparison is made across a much shorter time period than for the income data, and therefore less change would be expected.

Table 4.6: Average well-being in South Africa, by Race Group

	AFRO 2004	**AFRO 2008**	**Percentage change**
All	15.225	15.550	2.1
	(0.116)	(0.118)	-
African	14.499	14.781	1.9
	(0.131)	(0.143)	-
Coloured	17.551	16.951	-3.4
	(0.303)	(0.305)	-
Indian	18.444	18.512	0.4
	(0.337)	(0.330)	-
White	17.809	18.572	4.3
	(0.366)	(0.183)	-
Sample	2 382	2 378	

Source: Own calculations, Afrobarometer 2004, Afrobarometer 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

Table 4.7 below displays the average household income per capita by linguistic group in South Africa in 1993 and 2008. According to the PSLSD, in 1993 English and Afrikaans speakers earned considerably higher incomes per capita than the other South African linguistic groups. All of the other linguistic groups had mean incomes below the mean income per capita of all South African adults. A similar distribution persisted in 2008, according to the NIDS data.

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[60] Individuals were asked separate questions on how often they had to go without enough food, water, fuel, medicine and cash income. Each question was given equal weighting in the final well-being score. This aggregation crudely assumes that each category, and each rating point on the five-point scale, is equally important in contributing to well-being. More detailed information on how the measure of well-being was compiled is available in the data appendix.

Similar to Table 4.5 above it is evident that average income grew considerably for all linguistic groups across the fifteen year period. The average income of the Sepedi, Tshivenda, and isiNdebele groups grew substantially more than most of the other linguistic groups over the fifteen year period. One might question whether this is due to the presence of outliers. However, due to the fact that the Sepedi group makes up approximately 10 percent of the South African population, and the standard deviation of average income per capita is in line with those of other substantially large population groups, it is in fact possible that this income change is real. The same cannot be said conclusively for the Tshivenda and isiNdebele groups, who each only make up between $1 - 1.5$ percent of the South African population. Furthermore, the considerably higher standard deviations in the 2008 data for these two groups would indicate that there may have been some outliers present in the data. Overall, this table suggests a high degree of income inequality exists between the different liguistic groups in South Africa, and that this inequality has not improved substantially in the fifteen years from 1993 to 2008.

Table 4.7: Mean Income Per Capita in South Africa, by Linguistic group (2008 Rands)

	PSLSD 1993	NIDS 2008	Percentage change
All	1770.006	2419.156	36.7
	(44.698)	(125.131)	-
English	4340.526	6415.350	47.8
	(234.977)	(787.740)	-
Afrikaans	3660.109	5132.905	40.2
	(159.560)	(443.500)	-
isiXhosa	713.996	1027.135	43.9
	(27.492)	(80.180)	-
isiZulu	720.538	1091.599	51.5
	(26.114)	(61.869)	-
Setswana	1021.929	1617.966	58.3
	(39.764)	(180.039)	-
Sepedi	731.591	1437.596	96.5
	(36.668)	(181.870)	-
Sesotho	967.504	1477.477	52.7
	(44.516)	(111.252)	-
Tshivenda	931.113	3327.944	257.4
	(99.570)	(1552.599)	-
Xitsonga	985.021	1221.053	24.0
	(52.136)	(174.563)	-
siSwati	1293.460	1343.675	3.9
	(80.525)	(193.046)	-
isiNdebele	813.159	1657.503	103.8
	(83.301)	(501.912)	-
Sample	8 809	7 261	
Population	9 093 334	13 571 728	

Source: Own calculations, PSLSD 1993, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

Table 4.8 below displays average well-being for each linguistic group using the Afrobarometer data. In 2004 English and Afrikaans speaking individuals reported the highest average well-being, well above average well-being for all adult South Africans. All other linguistic groups reported similar levels of average well-being, which were all below the national average. In 2008, the overall distribution remained relatively unchanged. The Afrikaans, isiXhosa and Xitsonga speaking groups reported slightly lower average well-being, whilst all other groups reported slightly higher well-being. As with average well-being by race group, the data suggest that the degree of well-being inequality by linguistic group is less severe than income inequality

by linguistic group. Over time, the data also suggest that the linguistic well-being inequality may have decreased slightly.

Table 4.8: Average well-being in South Africa, by Linguistic Group

	AFRO 2004	AFRO 2008	% change
All	15.225	15.550	2.1
	(0.116)	(0.118)	-
English	17.808	18.517	4.0
	(0.339)	(0.193)	-
Afrikaans	17.709	17.568	-0.8
	(0.259)	(0.220)	-
isiXhosa	14.507	14.165	-2.4
	(0.270)	(0.302)	-
isiZulu	14.856	14.973	0.8
	(0.209)	(0.263)	-
Setswana	13.281	14.152	6.6
	(0.419)	(0.414)	-
Sepedi	14.199	14.653	3.2
	(0.372)	(0.429)	-
Sesotho	15.112	16.356	8.2
	(0.461)	(0.469)	-
Tshivenda	14.329	14.494	1.2
	(0.984)	(0.682)	-
Xitsonga	14.900	14.432	-3.1
	(0.671)	(0.543)	-
siSwati	13.131	16.388	24.8
	(1.134)	(0.511)	-
isiNdebele	13.085	14.113	7.9
	(0.677)	(0.905)	-
Sample	2 382	2 378	

Source: Own calculations, Afrobarometer 2004, Afrobarometer 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Standard errors are in parentheses.

The Lorenz curve was first developed in 1905, by Max O. Lorenz as a graphical representation of inequality in society.[61] Figure 3.1 below displays the Lorenz curves for South Africa in 1993 and 2008 using the PSLSD and NIDS data.[62] These Lorenz curves highlight how unequal the

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[61]The Lorenz curve shows on its horizontal axis the cumulative proportions of a given population, whilst the vertical axis depicts the cumulative proportion of per capita income for the same population. If a country had perfect equity in income distribution, the resulting graphical representation would be a perfect 45 degree line. The more bowed out Lorenz curve, the further it is from the 45 degree line of equality, the greater the income inequality.

[62] The income utilized here is based on reported household income after tax.

distribution of income in South Africa is. Although this figure does not give any indication of between-group inequality, it offers a graphical representation of the overall income inequality. What is most notable is that the distribution has barely changed from 1993 to 2008 despite the fall of apartheid and policy changes that were discussed in Chapter Three. There is a very slight worsening of inequality in the bottom 75% of the population, who have less income in 2008 than in 1993, whilst the top 25% have more – indicative of improvements in the upper-middle income distribution. The nevertheless, in both 1993 and 2008, the poorest 20 percent of the adult population have close to five percent of the total income, with the richest 20 percent having approximately 70 percent of the total income – indicative of a highly unequal income distribution.

Figure 4.1 Lorenz curves for 1993 and 2008
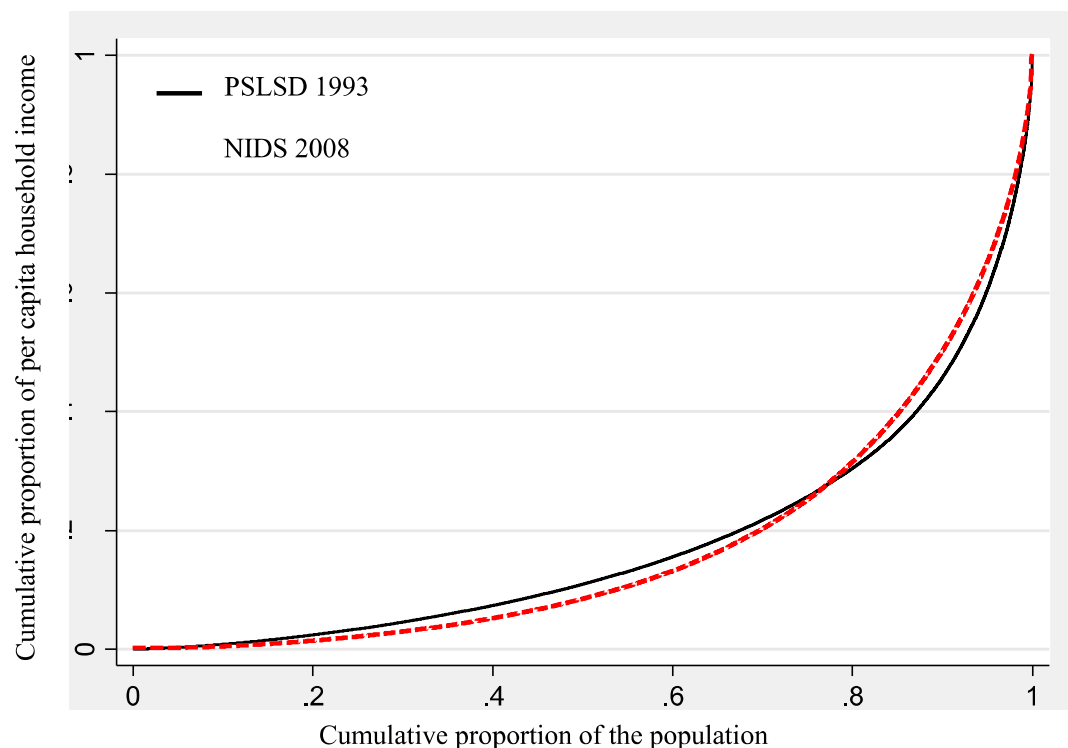
Source: Own calculations, PSLSD 1993, NIDS 2008.

4.4 Conclusion

This dissertation has chosen to make use of the 1993 Project for Statistics on Living Standards and Development (PSLSD), the 2008 National Income Dynamics Study (NIDS) and the Afrobarometer surveys from 2004 and 2008 for the empirical analysis of diversity. The PSLSD was chosen primarily due to the fact that it is the earliest and most comprehensive nationally representative survey that contained the required information. The NIDS dataset was chosen

primarily due to the fact that it is the most recently available nationally representative data on both living standards and demographics in South Africa. In addition, since the survey was largely based on the PSLSD, there is a high degree of similarity in the questions were asked in both surveys. The Afrobarometer survey data were chosen primarily to make use of the data regarding the levels of trust of South African adults (analysed in the next chapter), an important consideration in the diversity literature. The Afrobarometer surveys also collected basic demographic data, as well as data on the standards of living, allowing a degree of comparison with the PSLSD and the NIDS datasets.

This chapter has examined the descriptive statistics of the key variables necessary to measure diversity. The data shows that the African race group accounts for the majority of the South African adult population, and has grown in the fifteen years between 1993 and 2008. There has been a substantial decline in the White population – the second largest racial group – over the same time, with little change in the proportions of the Indian and Coloured populations. In line with these changes in the racial distribution in South Africa, the data shows considerable growth in the predominant African linguistic groups, the isiZulu and isiXhosa, and declines in the English and Afrikaans speaking groups. When individuals were asked to self-identify their ethnic groups, most Africans and African linguistic groups selected their linguistic or tribal group as their ethnic group. This is not surprising given the strong tribal ties of these groups. Most Indians selected their race group as their ethnic group. The remaining racial and linguistic groups, the Whites, Coloureds, English and Afrikaans selected language, race, tribal group or nationality as their ethnic groups. There was little change in self-identified ethnicity between 2004 and 2008. A surprising finding in the ethnicity data is the approximately 13 percent of South Africans that reported their nationality as their ethnic group, making them the third largest self-identified ethnic group in both 2004 and 2008. The last cultural attribute examined in this chapter was distribution of religious groups. Christianity was the largest religious group in 2004, followed by the individuals who reported no religion. By 2008, the proportion of the adult Christian population had grown quite substantially, whilst the proportion of non-religious decreased.

In addition to the summary statistics of cultural attributes, this chapter examined the mean incomes and average well-being of adult South Africans, by race group and by linguistic groups in order to identify whether inequality exists in the livelihood of the various groups. The data showed substantial income inequality between the racial groups, with Whites having higher mean income per capita than any other group in both 1993 and 2008, and Africans having substantially lower mean income per capita than any other group. The pattern of mean income

per capita by linguistic group follows a similar pattern, with English and Afrikaans speaking individuals having considerably higher mean incomes than any other group in both 1993 and 2008. The income data suggest high degrees of income inequality, particularly between-group inequality. Examining the well-being data from the Afrobarometer surveys indicates that whilst income distribution may be severely unequal between racial and linguistic groups, there less little perceived inequality when individuals are asked to assess their overall average well-being. Nevertheless, Africans did perceive their well-being to be notably lower than any other race group in both 2004 and 2008. In terms of the linguistic groups, English and Afrikaans speaking groups both reported higher average well-being than any of the African language groups in both 2004 and 2008. There was little notable change in perceived well-being from 2004 to 2008. The Lorenz curve using the 1993 PSLSD data and the 2008 NIDS data graphically illustrates the severe and relatively unchanged income inequality over the fifteen year period.

The following chapter will undertake to estimate the diversity measures in order to illustrate more precisely the nature of diversity, as well as how diversity in South Africa has changed over time. In addition, Chapter Five will examine access to public goods and services, infrastructure, the inequality of provision and changes over time, as well as levels of trust as a proxy for cohesion, in an attempt to highlight some of the effects of diversity on society in South Africa.

CHAPTER FIVE: MEASURING FRACTIONALISATION

This chapter aims to investigate the degree of fractionalisation in South Africa, and how this has changed over time. As discussed previously in Chapter Two, various policies have been implemented in South Africa to curb the negative implications of cultural diversity, and it would therefore be useful to assess to what extent these policies have been successful. Since the literature has shown that diversity reduces the provision of public goods, it is expected that if government has been successful in curbing the negative effects of cultural diversity, access to public goods such as water, sanitation, electricity and education would have increased over time. In addition, barriers to communication would have decreased, and the level of trust would have improved over time.

In order to perform this analysis, this chapter will begin by calculating fractionalisation indices prior to the implementation of the major policies discussed in Chapter Three, and comparing these to the indices in more recent years in order to gain an understanding of the changing nature of diversity in South Africa. This will be done using the data from the Project for Statistics on Living Standards and Development in 1993, the Afrobarometer surveys from 2004 and 2008, and the National Income Dynamics Study in 2008. Then, in light of South Africa's diversity, this chapter will assess the extent of, and changes in, access to public goods over time, and the existence of language barriers and the level of trust between South Africans, using the same data sources.

5.1 Diversity in South Africa

5.1.1 Fractionalisation

Table 5.1 below illustrates the value of the ethnolinguistic fractionalisation (ELF) index, as well as fractionalisation indices calculated using other common cultural attributes including race, self-reported ethnicity and religion, where this information was available. These indices measure the probability that two randomly selected individuals will belong to different cultural groups, with larger values indicating a greater degree of diversity. In 1993, the ELF was relatively high at 0.869 indicating a high degree of ethnolinguistic heterogeneity – a high probability of two individuals belonging to different ethnolinguistic groups. Given the fact that South Africa has eleven official languages, with no major dominant group, it is not surprising for the ELF to be so high. In contrast, the racial fractionalisation index was significantly lower, at 0.460 in 1993 indicating greater racial than linguistic homogeneity. This is a result of the fact that South Africa has only four major race groups, and a significant share of the population fall

into the African race group. Religious affiliation, not available in the 1993 data, was collected in the 2004 Afrobarometer survey, and religious fractionalisation using the aggregated religion data was calculated to be 0.438. This low fractionalisation index indicates higher religious homogeneity, and results from the fact that only six major religious groups were included in the calculation of this index, with a very high proportion of the population falling into the Christian group. Disaggregated religious fractionalisation in 2004 was notably higher at 0.831, suggesting an overall degree of religious heterogeneity in line with that of ethnolinguistic heterogeneity.[63] This latter figure was calculated using all of the religious groups included in the Afrobarometer survey. Although this figure is high, it may be misleading, since most of the religious groups included in the calculation are considered branches of Christianity. Self-reported ethnicity data was only collected in the Afrobarometer surveys. In 2004, ethnic fractionalisation was calculated to be 0.882, higher than ethnolinguistic fractionalisation in that same year, mainly as a result of a greater number of self-identified ethnic groups.

Table 5.1: Fractionalisation in South Africa

	PSLSD 1993	AFRO 2004	AFRO 2008	NIDS 2008
Ethnolinguistic	0.869	0.862	0.855	0.860
Self-identified Ethnic	-	0.882	0.882	-
Racial	0.460	0.371	0.401	0.373
Religious	-	0.438	0.395	0.308
Disaggregated Religious	-	0.831	0.830	-

Source: Own calculations, PSLSD 1993, Afrobarometer 2004, Afrobarometer 2008, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older.

There is evidence in Table 5.1 that the ELF fell slightly between 1993 and 2008, yet remained high – falling to 0.862 in 2004, and to between 0.855 and 0.860 in 2008. Racial fractionalisation fell more notably from 0.460 to 0.373 – 0.401 in 2008, most likely due to the substantial rise in the dominant African population and decline in the size of the White population over the 15 year time period. Religious fractionalisation also fell quite notably between 2004 and 2008 to 0.395, which is attributable to the rise in the Christian proportion of the population. Ethnic fractionalisation, calculated from data where individuals were allowed to self-identify the ethnic group they belong to, remained unchanged from 2004 to 2008, remaining amongst the highest of the various fractionalisation measures at 0.830, second to ethnolinguistic fractionalisation. Overall, South Africa has thus become somewhat less fractionalised across the period.

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[63] The full list of religious groups that were included at the disaggregated level is available in the data appendix.

5.1.2 Social Diversity Index

In addition to assessing diversity according to each of the cultural attributes in isolation, as was done in Table 5.1, the social diversity index (SDI) generates a fractionalisation index which is able to consider multiple attributes simultaneously. Table 5.2 below displays the SDIs calculated for South Africa, which measure the probability that two randomly selected individuals will belong to different ethnolinguistic, racial and religious groups. As was the case with the ELF, larger values of the SDI indicate a greater degree of diversity. The aggregated SDI is calculated using the eleven official South African languages, the four major race groups, and the six major religious groups that were described in Chapter Four. The disaggregated SDI is calculated using data for the 30 disaggregated religious groups that were collected in the Afrobarometer surveys. It is expected that the probability of two randomly selected individuals being from different cultural groups is higher when each individual's culture is determined by their language, their race and their religion than when only one cultural attribute was considered, as with the ELF. In 2004, the SDI for South Africa was 0.931 indicating a very high degree of social fractionalisation – considering that in previous empirical work, the SDI was recorded as high as 0.9984, for Sudan and Burma, and as low as 0.1400 for Hong Kong (Okediji, 2008). This SDI in 2004 for South Africa is somewhat lower than the SDI of 0.9711 calculated in the works of Okediji (2008). In addition, according to the 2008 Afrobarometer data, the value of the index fell from 2004 to 2008 to 0.916 – 0.923, most likely primarily due to the rise in the proportion of the African population group, as well as the rise in the size of the Christian population over the period. When considering the disaggregated SDI, social heterogeneity was much higher in 2004 at 0.974 (and comparable to the workings of the prior publication by Okediji (2008)). This is largely due to the higher number of religious groupings – mostly offshoots of Christianity – that were used in the calculation, which makes it less likely that any two individuals will belong to the same precise cultural group. It was found that at the disaggregated level, besides some of the larger Christian sub segments, and those with no religion, no other religious groups comprised of more than 5% of the South African adult population.[64] The NIDS only collect aggregated religion data. Therefore, in order to maintain comparability between datasets, all of the remaining religious diversity measures have been calculated using the aggregated religious group. Regardless of whether the aggregated or disaggregated SDI is considered, it is evident that social diversity decreased, although only slightly, between 2004 and 2008, indicating a marginal increase in the degree of cultural homogeneity in South Africa over time.

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[64] The only groups comprising of more than 5% of the population include: Christian, No Religion, Catholic, Zionist and Methodist.

Table 5.2 Social Diversity Index in South Africa

	AFRO 2004	AFRO 2008	NIDS 2008
Aggregated	0.931	0.923	0.916
Disaggregated	0.974	0.971	-

Source: Own calculations, Afrobarometer 2004, Afrobarometer 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older.

5.1.3 Between-Group Inequality

In the context of this study, between-group inequality (BGI) measures the expected difference in the mean income or well-being of two randomly selected individuals' ethnic groups. The larger the value of the index, the greater is the degree of inequality between the groups. Income has been calculated using the mean household monthly income per capita in real 2008 prices, and the Afrobaromer has been excluded from the BGI calculation as no quantitative income data was collected in this survey. The results of the between-group income inequality are displayed in Table 5.3 below. In 1993, the ethnolinguistic BGI was calculated as 0.397, while the racial BGI was higher at 0.412. This higher extent of racial income inequality is not surprising given South Africa's past of racial segregation and income inequality that has developed along these lines. Over time, the ethnolinguistic BGI decreased to 0.360 in 2008. However, the racial BGI decreased more substantially over the same period to 0.329, such that by 2008, racial between-group inequality was lower than ethnolinguistic income inequality. This is likely due to the focus of South Africa's policymakers on rectifying racial inequalities that arose during the apartheid era, for example through the social grant system and more equal access to the labour market. Religious BGI could only be calculated in 2008 and was 0.074. It is unsurprising that this figure is notably lower than ethnolinguistic and racial inequality, since the greatest racial income differences in 2008 existed between the White and African population, as well as the between the White and Coloured population. A substantial proportion of individuals from all three of these race groups reported belonging to the Christian religion. Consequently, in the calculation of the religion BGI which utilises the mean income for each religious group, a substantial share of the African, coloured and White population belong to the same group, with the same mean income.

Table 5.3: Between-Group Income Inequality in South Africa

	PSLSD 1993	NIDS 2008	Percentage change
Ethnolinguistic	0.397	0.360	-9.3
Racial	0.412	0.329	-20.1
Religious	-	0.074	

Source: Own calculations, PSLSD 1993, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Income is measured as the mean household monthly income per capita in real 2008 prices.

As discussed in Chapter Three, the BGI can also be calculated using qualitative measures of well-being, when accurate quantitative income data are not available. These figures are not directly comparable to BGIs calculated with income data due to the different scale of measurement, as was highlighted in chapter three. Fortunately, for the purposes of this dissertation, the changes in indices over time are just as important as the measured size of the diversity indices. Table 5.4 below displays the BGI results using the well-being data collected in the Afrobarometer surveys. It is important to highlight that these results need not reflect the same changes over time that were observed using income data, as well-being measures whether individuals have had to go without access to enough food, water, fuel, medicine and cash income, and is not solely reliant on the purchasing power of a household. In 2004, the ethnolinguistic well-being BGI was calculated as 0.050 – overall, a low inequality value, but high when compared to those calculated for self-identified ethnicity, racial and religious well-being BGIs, which were 0.049, 0.037 and 0.017 respectively in 2004. Using this measure of BGI we see that racial BGI is slightly lower than ethnolinguistic BGI, similar to what was found when using quantitative income data for 2008.

Table 5.4: Between-Group well-being Inequality

	AFRO 2004	AFRO 2008	Percentage Change
Ethnolinguistic	0.0498	0.0504	1.2
Self-identified Ethnic	0.0490	0.0450	-8.2
Racial	0.0372	0.0384	3.2
Religious	0.0174	0.0156	-10.3

Source: Own calculations, Afrobarometer 2004, Afrobarometer 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older. Well-being is measured qualitatively on a twenty five-point scale.

By 2008, the ethnolinguistic well-being BGI increased slightly, as did the racial well-being BGI, whereas the ethnic and the religious well-being BGIs decreased. It is not clear whether these results conflict with those exhibited in Table 5.3 above, as quantitative income data to use in conjunction with linguistic, ethnic, racial and religion data were not readily available for 2004. Nevertheless, these low well-being BGI scores indicate that despite relatively large differences in average household income per capita between groups, most groups reported similar levels of overall well-being – as indicated by the descriptive statistics in Chapter Four. In the South African context, this suggests some success from a policymaking perspective, insofar as South Africans have access to the basic necessities outlined in the calculation of well-being, or at least, their access to these necessities is not highly unequal. The one exception, though, is the evidence of slight increase in racial between-group well-being inequality between 2004 and 2008.

This rise in racial well-being BGI in 2008 should be considered with caution, given the rise in the proportion of the White population sampled in the Afrobarometer 2008 survey, which wasn't reflected in the NIDS sample. In light of the BGI results from tables 5.3 and 5.4 there is an indication that, overall, from 1993 to 2008 income inequality between groups has fallen in South Africa. However, despite the presence of rather high income inequality between groups, in terms of well-being and access to basic necessities, inequality between groups is relatively low.

5.1.4 Polarisation

The final group of measures of diversity for South Africa are the measures of polarisation. In contrast to the other three groups of measures, which are highly sensitive to the number of cultural groups, polarisation measures place a greater emphasis on the size of the groups in society, and the extent to which society is tending towards a bimodal distribution. Table 5.5 below displays the polarisation indices calculated using each of the cultural attributes for South Africa from 1993 to 2008. In 1993 ethnolinguistic polarisation was 0.445 indicating a moderate level of polarisation when compared to the estimates of Montalvo and Reynal-Querol (2005), where ethnic polarisation was found to range from 0.017 for Madagascar, to 0.958 for St. Lucia – a similar range to the other diversity measures. Racial polarisation, however, was much higher at 0.728. The earliest available measures of ethnic polarisation based on self-identified ethnicity and religion are those for 2004, which were calculated as 0.396 and 0.709 respectively. Ethnolinguistic and ethnic polarisation were both low overall, in part due to the large number of cultural groups, although primarily due to the fact that there was no clear dominant group which theoretically reduces the incentive for rent-seeking activities and conflict between groups.

Ultimately this suggests that South Africa's ethnic groups were not highly polarised. By contrast, the fewer racial and religious groups, with the presence of a dominant group in each, do create greater incentive for conflict as indicated by the higher polarisation measures. Between 1993 and 2008, both ethnolinguistic polarisation and ethnic polarisation increased, indicating the growth of a more dominant group (isiZulu-speakers) and the increased polarisation of ethnolinguistic and ethnic groups in South Africa over the period. This increased diversity would suggest an increase in the incentive for rent-seeking as well as increase the potential for conflict. Racial polarisation decreased quite significantly over the period, as did religious polarisation. Overall, South Africa would have been considered to be racially polarised in 1993, and religiously polarised in 2004. Both of these measures decreased substantially to more moderate levels of polarisation in 2008. None of the measures of polarisation in South Africa indicate particularly high polarisation in 2008, as all polarisation scores range between 0.399 and 0.655 - whilst 36 per cent of countries in previous research had ethnic polarisation scores in excess of 0.655 (Montalvo and Reynal-Querol, 2005).

Table 5.5: Polarisation in South Africa

	PSLSD 1993	AFRO 2004	AFRO 2008	NIDS 2008
Ethnolinguistic	0.445	0.456	0.474	0.464
Self-identified Ethnic	-	0.396	0.399	-
Racial	0.728	0.602	0.640	0.609
Religious	-	0.709	0.655	0.524

Source: Own calculations, PSLSD 1993, Afrobarometer 2004, Afrobarometer 2008, NIDS 2008

Notes: The data are weighted. The sample consists of adults aged 18 and older.

5.1.5 Discussion and concluding remarks

The diversity measures calculated above suggest, first and foremost, that diversity does change over time, contrary to the common belief in the literature, even when measured over a relatively short timeframe. Furthermore, the four different types of diversity measures highlight an interesting phenomenon that has not received much attention in the literature. Generally, ethnicity is the preferred definition of cultural groups in studies of the relationship between diversity and economic growth. It has been predicted that higher levels of ethnic diversity have negative consequences for economic growth, as outlined previously in Chapter Three. Some studies favour the use of polarisation in the place of fractionalisation, with the same expectation and similar reasoning for why higher levels of polarisation have negative consequences for economic growth. Both measures have been used in regression analysis as predictors of poor economic outcomes, and have been shown to be statistically significant in certain applications, as discussed in the literature review. The expectation that the literature creates is that both

fractionalisation and polarisation are alternative measures of diversity that explain the same phenomenon – higher diversity being bad for the economy. The results of this dissertation highlight that in South Africa, for the period 1993 to 2008, ethnolinguistic fractionalisation decreased, whilst polarisation increased. In line with this finding, according to the Afrobarometer's data on self-selected ethnic group for the period of 2004 to 2008, ethnic fractionalisation decreased, whilst polarisation increased. This creates conflicting expectations with regards to economic outcomes. South Africa's high ethnolinguistic and ethnic fractionalisation in both 1993 and 2008 suggest that diversity may have contributed to poor economic outcomes, although the reductions in fractionalisation over time suggest potential improved prospects for economic growth. In contrast, South Africa's low ethnolinguistic and ethnic polarisation in both 1993 and 2008 suggest that diversity may not have hampered economic growth, whereas the increased polarisation over time suggests reduced prospects.

However, in light of the importance of historical and social context in the definition of culture in any given society, it is likely that racial measures of diversity would be better predictors in the South African context, given the past history of racial segregation and persistent inequality along racial lines (Fedderke et al., 2008). Considering the measures of racial diversity, all but one indicate that there has been a reduction in diversity since 1993. South Africa has become more racially homogenous, racial between-group income inequality has fallen, and the country has become less racially polarised. The only exception is between-group well-being inequality, which suggests a small increase in inequality from 2004 to 2008, although overall racial well-being inequality is low. In the international literature, race is generally not considered as an important attribute in measuring cultural diversity and as a result it is difficult to compare the level of racial diversity in South Africa with other benchmark measures. Racial fractionalisation does not appear to be particularly high, when compared to other measures of fractionalisation, although it is difficult interpret this measure with comparisons of racial fractionalisation around the world. By contrast, racial between-group income inequality and polarisation indicate high degrees of racial diversity in South Africa. This would suggest the likelihood of poor public goods and infrastructure provision, although the reduction in racial diversity over time would suggest improved economic outcomes.

Religious diversity is low and South Africa has become less fractionalised and less polarised from 2004 to 2008. Between-group well-being inequality also fell over the period, and between-group income inequality was low for this attribute in 2008. Although religion has not been found to be a significant predictor of economic outcomes in most of the literature, the change in

religious diversity measures between 2004 and 2008 would be consistent with improved economic prospects for South Africa.

Precisely testing which of the range of diversity measures is best able to account for the South African economy's growth prospects is a question best answered by regression analysis, which is not within the objectives of this dissertation. However, the literature reviewed in Chapter Two revealed the mechanisms through which diversity impacts on economic prospects. The available data allow for the descriptive examination of some of these mechanisms, namely whether the level of diversity in South Africa bears any relationship with the level of public goods provision. Furthermore, the data are also able to indicate whether individuals have received greater access to public goods over time. If there have been notable improvements over time, this would be consistent with the decreases in diversity over time displayed in this section. It is, however, important to note that since this is simply a descriptive analysis, the existence of causal relationships cannot be confirmed. Other political, social and economic confounding factors cannot be excluded as causes of improvements in economic outcomes. The remaining discussion aims to highlight whether there is evidence of what the literature has outlined, as well as to possibly indicate whether South Africa's overall high levels of diversity may play a role in poor access to public goods and services.

5.2 Access to Public Goods and Infrastructure in South Africa

The available data sets provide insight into public goods and infrastructure provision with regards to access to water, sanitation, roads, housing, electricity and education.[65] Each of these will be examined in more detail in the discussion to follow, in order to assess levels of access to public goods and infrastructure, and the extent of inequality in access. The analysis is performed through discussion of the relevant figures that have been estimated for each data source, although these are not presented in table form. Furthermore, changes in access and inequality over time will be evaluated. These changes will also be considered with respect to racial inequality of access, given the fact that apartheid has been a key phenomenon driving inequality along racial lines, and consequently policy has largely been designed to rectify the racial inequalities of the past.

5.2.1 Water

In 1993, the PSLSD showed that only 61 percent of the South African adult population had access to piped water on their property, and an additional 17.2 percent had access to piped water

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[65] The precise questions asked regarding access to these public goods and services, in each of the surveys, are available in the data appendix.

within their community in the form of a public tap, or available from a kiosk. The main reason for low levels of access was the unequal provision of piped water, with particularly low provision in African communities. All Indians and 99.8 percent of Whites had access to piped water on the property they resided on. This figure was lower for Coloureds, at 95.4 percent, and much lower for Africans at 45.2 percent – highlighting the stark racial inequality that existed as a result of the apartheid regime which particularly disadvantaged Africans. In the Afrobarometer surveys, individuals were not asked about their main source of water – enumerators were asked to evaluate whether piped water was available.[66] According to the National Income Dynamics Study (NIDS) data from 2008, 72.6 percent of the population had access to piped water on their property, and an additional 17.2 percent had access to piped water in the community. In addition to the improved access to piped water, the overall inequality of access decreased as well. The improvement was mainly due to greater access in the African population, with an increase from 45.2 percent to 65.4 percent with access to piped water on their property over the fifteen year time period. The proportion of Coloureds, Indians and Whites with access to piped water remained approximately the same. Overall, the data indicate improved access to piped water during the period from 1993 to 2008, as well as reduced inequality of provision.

5.2.2 Sanitation

Data regarding sanitation were not collected in the Afrobarometer surveys; however, in the PSLSD and NIDS surveys, individuals were asked about the type of toilet that their household used. In 1993, 54.1 percent of adult South Africans had access to a flush toilet, 27.7 percent had access to a pit latrine, 1.1 percent used ventilation improved pit (VIP) latrines, 5.9 percent made use of either a bucket or a chemical toilet, and 11.1 percent had no access to any formal toilet type. This indicates generally poor access to hygienic sanitation in 1993. In addition, this access was also highly unequal. In 1993, 99.9 percent of Whites, 99.7 percent of Indians, and 87.9 percent of Coloureds had access to flush toilets, whilst the same was true of just 36.3 percent of Africans. Given that access to running water was poor in African households, it is not surprising that access to flush toilets was also poor. In 2008, access to sanitation had improved, although only marginally, with 56.2 percent of adult South Africans having access to a flush toilet, an additional 2.2 percent over the 15 years since 1993. The use of regular pit latrines decreased to 23.3 percent, whilst the use of VIP latrines increased to 9.5 percent, indicating an overall improvement in the quality of sanitation. The percentage of individuals making use of bucket and chemical toilets fell to 4.6 percent, and 6.3 percent of individuals had no access to a formal

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[66] The results of the enumerator answered question regarding water access in the Afrobarometer surveys can be found in the data appendix

toilet – further improvements in sanitation since 1993. In 2008 the inequality of access was still persistent, with all Whites, 88.5 percent of Indians, and 91.3 percent of Coloureds reporting access to flush toilets, whilst just 45.1 percent of Africans had access. This figure is still quite low considering 65.4 percent of Africans had obtained access to piped water of the same time period. Nonetheless, this represents a nine percentage point increase in access to flush toilets amongst Africans over the 15 year period. An additional 29.7 percent of Africans had access to regular pit latrines, and 12 percent had access to VIP latrines.[67] Overall, access to hygienic sanitation was still poor and unequal in 2008, yet an improvement on the figures from 1993, with the majority of individuals in all race groups having access to some form of formal toilet facility.

5.2.3 Roads

Very little information was collected in the four data sources regarding infrastructure. However, the PSLSD and Afrobarometer surveys asked questions about access to tarred roads in the community. In particular, the PSLSD community survey asked about the type of roads in existence in each community. In 1993, 28.1 percent of South African communities reported that all of their roads were tarred. An additional 17.7 percent of communities reported having some tarred and some dirt/gravel roads in the community. The modal response, reported by 51.8 percent of the interviewed communities, was having dirt or gravel roads, while the remaining communities reported having some other unspecified form of road or no motorable roads. That signifies that over half of the South African population in 1993 did not have access to formal roads – an indication of the inequalities in access to basic public goods that existed during the apartheid era.

While the Afrobarometer surveys collected some information on road type, they did not ask the same question and the results are therefore not directly comparable to the PSLSD. Nonetheless, they provide some indication of whether road access has improved over time. In the 2004 and 2008 Afrobarometer surveys, the enumerators were asked whether the roads at the start point of the interview area were tarred. However, even if the enumerator answered yes, it is not clear whether the entire community was tarred, and furthermore, if the enumerator answered no, it is still unclear whether some of the community's roads might be tarred. In 2004, 53.6 percent of adult South Africans lived in communities with tarred roads. This figure increased in 2008 to 60.7 percent. Overall, access to tarred roads was poor in 1993 and, despite evidence of

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[67] This is in addition to the 45.1 percent with access to flush toilets – totalling 86.8 percent of Africans having access to either flush toilets, or pit latrines in 2008 NIDS data.

improvements in access to tarred roads; it seems likely that access remained relatively low in 2004 and 2008.

5.2.4 Housing

In addition to information on tarred roads, the PSLSD and the NIDS surveys asked individuals about the type of dwelling in which they lived. Although housing is not typically considered a public good, creating affordable housing for all citizens is one of the duties of the elected government. South Africa's budget estimates for 'Housing and related services' for the 1992/1993 fiscal year and the 1993/1994 fiscal year were 1.1 and 1.3 percent of total expenditures respectively. This proportion saw substantial increases for the 2007/2008 and 2008/2009 fiscal periods, where 'Housing and community development expenditures' were estimated to be 7.2 and 7.3 percent of the total government expenditure budget respectively. In line with this increase in the importance of housing, and money allocated towards provision, it is expected that over the period access to good quality housing would have improved. This increase in spending contributed to the 2.6 million houses (RDP and BNG) had been built in South Africa between 1994 and March 2008, (1.4 million of which were built prior to 2004) aimed at housing the millions of South Africans living in informal housing (Tissington, 2011).[68]

Housing type has been divided here into six broad categories in order to make the PSLSD and NIDS data as comparable as possible. These housing types include: formal house; other formal housing, such as flats or apartments; informal housing, which includes shacks; room or outbuilding; traditional dwelling, such as mud huts; and other dwellings, such as caravans or tents.[69]

In 1993, 55.2 percent of adult South Africans resided in a formal house or part of a house. An additional 6.3 percent resided in other formal dwellings, including flats and maisonettes. The remaining population was distributed relatively equally across the other four housing types. In addition to the low level of individuals residing in formal housing in 1993, access to housing was unequal across race groups. In 1993, 99.7 percent of Whites, 93.4 percent of Indians, 89.8

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[68] BNG housing refers to the 'Breaking New Ground' housing plan, launched in 2004, considered to be an updated version of the RDP. This aims to comprehensive plan from the department of Human Settlements to rectify the drastic housing shortages in South Africa.

[69] Despite the attempt to create comparable categories, there were important differences in the way in which data were collected in the 1993 survey and the 2008 survey. In the 1993 survey individuals could respond that they reside in a combination of buildings. It is not clear exactly what was meant by this classification, although since 98 percent of respondents who selected this residence type were African, and the remainder were Coloured and Indian, it is possible that this refers to migrant labourers who have multiple places of residence. These people have been recorded as living in other dwellings for the purposes of this dissertation. This type of housing option was not present in the NIDS 2008 data. For a more detailed explanation of how these housing types were derived from the original data, refer to the data appendix.

percent of Coloureds and only 46.9 percent of Africans resided in either a formal house, or some other formal housing. Furthermore, 13.8 percent of the African population resided in traditional dwellings, 15.7 percent lived in informal dwellings, 10.5 percent lived in a room or outbuilding and 13.1 percent lived in some "other" dwelling type. This is evidence of the effects of apartheid, migrant labour and the extreme socioeconomic inequalities that existed in South Africa.

In 2008, the proportion of the population residing in a formal house increased by more than six percentage points to 62.0 percent – likely a result of the increased expenditure and RDP housing provision over the period. Although this may not appear to be a large increase, it is important to realise that this figure has filtered out the individuals who previously rented a room in a house or who may have lived in a town house, and signifies only those who live in a formal, free-standing structure. The proportion of the population residing in informal dwellings, other formal dwellings, and rooms or outbuildings remained relatively unchanged. The proportion of individuals residing in traditional mud hut type structures increased from 9.7 to 12.1 percent, although this is likely due, in part, to measurement inaccuracies. There was also a substantial decrease in the proportion of people in the "other" dwelling type's category from 9.5 to 0.2 percent of the adult population. A portion of this decrease was likely due to increased housing provision, but it is also likely that the increased number of housing options included in the 2008 survey, and the specification of 'main' residence, allowed people to more accurately report their housing type. This means that individuals who previously resided in a combination of buildings and were classified in other, have now been able to correctly allocate their main residence, suggesting the likelihood of overstating the improvements in this housing tier, as a result of measurement inconsistency rather than true improvements. Nevertheless, the data do indicate improved access to housing overall, and racial housing inequality was reduced between 1993 and 2008. According to the 2008 data, 91.7 percent of Whites, 92.6 percent of Indians, 86.8 percent of Coloureds and 62.9 percent of Africans resided in a formal house or other formal housing. The proportion of Africans living in informal dwellings decreased slightly to 13.7 percent, and those living in rooms or outbuildings decreased to 8.2 percent.

Overall, the data indicate that there have been substantial improvements in access to quality housing, yet there is still a clearly apparent shortfall. The most disturbing evidence that this data shows is that the overall proportion of the adult population residing in informal dwellings has not decreased. Over the period of 15 years between the two surveys, with large increases in government expenditure on housing, one would have expected a more notable decrease in the proportion of individuals residing in informal dwellings.

5.2.5 Electricity

Both the PSLSD and NIDS surveys asked individuals if their houses were connected to the electricity grid. The Afrobarometer surveys did not ask the individuals, but instead the enumerators were asked whether there was access to electricity in the community. Consequently, there is likely to be a degree of measurement error in the Afrobarometer data, and it is likely that the data overstate the true access to electricity – since having power lines available in the community does not necessarily mean that all houses in the community are electrified. In 1993, 54.9 percent of the adult South African population reported having access to electricity in their homes. Combined with this poor electricity provision, was a high degree of inequality, with 99.8 percent of Whites and all Indians having access to electricity, whilst 85.9 percent of Coloureds and only 37.6 percent of Africans had access to electricity at home. According to the Afrobarometer surveys, access to electricity at the community level was 79.6 percent in 2004, and increased to 89.4 percent in 2008. This increase in electricity provision in post-apartheid South Africa is confirmed by the NIDS data, where 82.2 percent of adult South Africans reported living in electrified homes in 2008. Inequality of access to electricity decreased with the increase in electrification. In 2008, according to the NIDS, 98.5 percent of Whites, 96 percent of Indians, 93.1 percent of Coloureds and 78.2 percent of Africans had access to electricity. Unlike the other areas of public goods provision, electricity provision is one area where the South African government has managed to radically improve access. The majority of households that remain without electricity are those in rural areas, where infrastructure development is costly and difficult.

5.2.6 Education and Communication

As discussed in Chapter Two, education plays an important role in reducing the negative effects of diversity for numerous reasons. Firstly, higher levels and better quality of education improves earnings capabilities, and can help to alleviate poverty, particularly in countries with low levels of educational attainment. Secondly, education plays a role in creating tolerance and understanding of other cultures. Lastly, education has the ability to facilitate the reduction in barriers to communication if attention is placed on teaching individuals to communicate in a common language. Therefore, education has the potential to, amongst other things, reduce between-group inequality, decrease cultural frictions, and reduce barriers to communication. In Chapter Three it was highlighted that government doubled estimated public expenditure on education between 1993 and 2008 from approximately R62.9 billion to R121.1 billion in real terms. However, as a percentage of total expenditure, and a percentage of GDP, public spending on education decreased between 1993 and 2008. Education made up 21.2 percent of estimated

total government expenditure and 6.1 percent of GDP in 1993, and 16.9 percent of estimated total expenditure and 5.1 percent of GDP in 2008 (The National Treasury, 1993; The National Treasury, 2008). In light of these figures, it is unclear what to expect with regards to education provision and inequality of access over time.

The data collected in the PSLSD, the Afrobarometer surveys and the NIDS offer insight into the access to education in South Africa, with information regarding educational attainment. However, educational attainment is not a true indicator of access to education, as some individuals may not obtain education for social and cultural reasons, rather than due solely to poor provision of education by government. In addition, data on educational attainment are not able to say anything about the quality of that education. Lastly, since the samples are restricted to the adult population, we are likely to see less change over time, as adults in 1993 with low levels of education would be unlikely to obtain further education following policy changes and improvements in access to education. These types of changes are aimed almost exclusively at the youth, and would take many years to filter through completely to the adult population. Nevertheless, over a 15 year time period we should begin to see the impact of improved access to education.

Table 5.6 below outlines the various levels of educational attainment measured for South African adults in the PSLSD and NIDS data. In 1993, 17.1 percent of adult South Africans had no formal education, 29.9 percent had some primary education, 31.7 percent had some secondary education, 11.7 percent had obtained a matric and only 8.2 percent of South Africans had obtained some tertiary education. In addition to these low levels of educational attainment in 1993, racial inequality was high: 22.2 percent of Africans had no formal education, whilst for Whites, Indians and Coloureds only 6.6, 6.4 and 7.3 percent respectively had not obtained any formal education. By contrast, only 6.7 percent of Africans had obtained a matric, and 2.3 percent had some tertiary education, whilst 26.1 percent of Indians and 34.3 percent of Whites had obtained a matric, and 8.2 percent of Indians and 23.5 percent of Whites had obtained some tertiary education. This is evidence of the inequality created by the apartheid regime, by reducing access to education, particularly for people of colour.

Table 5.6: Educational Attainment in South Africa – PSLSD 1993 and NIDS 2008

	PSLSD 1993	NIDS 2008	Percentage change
No schooling	0.171	0.103	-39.8
Grade 1-7	0.299	0.194	-35.1
Grade 8-11	0.317	0.365	15.1
Matric	0.117	0.198	69.2
Certificate/ Diploma without Matric	0.006	0.018	200
Any Tertiary	0.090	0.122	35.6

Source: Own calculations, PSLSD 1993, NIDS 2008.

Notes: The data are weighted. The sample consists of adults aged 18 and older.

In 1993, 79.3 percent of adult South Africans had not achieved a matric, whereas in 2008 this figure had decreased to 66.4 percent. According to the NIDS data, 10.3 percent of adult South Africans had obtained no formal education, a reduction since 1993. The proportion of individuals who had only obtained some primary education was substantially lower than in 1993, at 19.4 percent, whilst 36.5 percent of the population had obtained some secondary education, 19.8 percent had obtained a matric, and 14 percent had obtained some tertiary education. According to the NIDS 2008 data, 18.2 percent of Africans and 19.3 percent of Coloureds had obtained a matric, much higher proportions than those reported in 1993. The proportion of Indians and Whites who had only obtained a matric decreased to 19.6 and 31.1 percent respectively; although this is likely due to the fact that a higher proportion of these groups had gone on to obtain tertiary education. The levels of tertiary education in 2008 still illustrate a high degree of racial inequality, with only 9.8 percent of Africans, and 12.2 percent of Coloureds having obtained some tertiary education. The attainment of tertiary education increased for Indians, 26.1 percent of whom had obtained some tertiary education in 2008. The proportion of the White adult population who had obtained some tertiary education in 2008 also increased from 23.5 percent in 1993 to 42.2 percent. The Afrobarometer education categories are somewhat different and are not displayed here, but the data also show improvements in education attainment and decreased inequality.[70]

Overall, with regards to education, attainment was particularly low in 1993. The data indicate substantial improvements both in the level of educational attainment as well as in obtaining greater equality between race groups. Nevertheless, racial education inequality appears persistent, and the level of educational attainment is poor, with a large proportion of the adult population having not completed high school in 2008.

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[70] The table of educational attainment as measured in the Afrobarometer data can be found in the data appendix

In addition to data regarding educational attainment, the NIDS survey collected information on individuals' abilities to read and write in English. Although this is not a perfect proxy, the combination of ability to read and ability to write in English offers some insight into the ability of South Africans to communicate in a common language, and is important in an economic growth perspective since English is considered to be the dominant international language of business. In 2008, 45.5 percent of adult South Africans reported that they were able to both read and write very well in English; however, 16.2 percent reported that they could not read nor write in English at all. This indicates the presence of barriers to communication. Furthermore, 82.7 and 86.5 percent of Whites and Indians respectively, reported being able to communicate in English very well, whereas only 38.8 and 46.3 percent of Coloureds and Africans respectively reported high English proficiency. Thus in addition to the high proportion of the population who cannot read or write in English, the ability to communicate in English is highly unequally distributed across race. This indicates that in addition to the existence of cultural differences and high ethnolinguistic fractionalisation, both of which contribute to barriers to communication, a large proportion of the population do not possess the ability to communicate in a common language. Although English is considered to be one of the dominant languages of business internationally, in many parts of South Africa Afrikaans is the common language for day to day communication – in formal and informal contexts.

5.2.7 Discussion and concluding remarks

Having examined access to public goods and infrastructure in South Africa for the period of 1993 to 2008 there is evidence that conditions have improved over time. Access to piped water improved, and inequality of access decreased from 1993 to 2008. Sanitation and access to paved roads remained poor and unequally distributed, despite evidence of improvement. Housing provision improved over the period, yet a high proportion of the adult population still resided in informal housing in 2008. The most notable improvements occurred in access to electricity and educational attainment. In addition to considering educational attainment, the NIDS data provide insight into the ability to communicate in a common language. Given South Africa's high ethnolinguistic fractionalisation and the poor ability of many adult South Africans to communicate in English, it is likely that barriers to communication may hamper economic growth. Considering the combination of each of the components of public goods provision and infrastructure in South Africa, there is some evidence that government policies have been successful in curbing the negative effects of diversity, as since the end of apartheid, access to public goods and infrastructure has improved. There is, however, still substantial room for improvement as well as strong evidence of persisting racial inequalities. Given the existence of

unequal access to public goods and infrastructure, particularly along racial lines, it is likely that South Africa's racial diversity has been a contributing factor.

5.3 Trust

In addition to examining access to public goods and infrastructure, some of the data sources utilised in this dissertation are able to give some broad insight into the levels of trust in South Africa. Often, high levels of diversity are believed to result in lower social capital and cohesion between groups. This in turn, could present as low levels of trust. In the Afrobarometer 2004 survey, respondents were asked whether generally, most people can be trusted or not. Only 26.5 percent of survey respondents reported that they believe most people can be trusted, whilst 73.5 percent responded that you must be very careful – indicative of generally low levels of trust. Respondents were then asked a series of questions regarding their level of trust of neighbours, people from the same ethnic group and people of different ethnic groups. 49.2 percent of respondents reported that they feel that their neighbours can be trusted 'Somewhat' or 'A lot', with the other 50.8 percent of respondents saying either 'Just a little' or 'Not at all'. A similar proportion, 49.3 percent provided positive responses to trusting members of the same ethnic group, whilst just 42.3 percent provided positive responses to trusting those from different ethnic groups. This highlights that, in 2004, South African adults were more trusting of people living in their own communities or belonging to the same ethnic group, compared to people who were from different ethnic groups, which is indicative of between-group friction that is characteristic of diverse societies.

In Afrobarometer 2008, respondents were asked a series of questions regarding their level of trust of people that they know, other South Africans, and foreigners. 50.9 percent of South African adults reported to trust people they know either 'Somewhat' or 'A lot'. This in itself seems quite low, considering that 34.5 percent reported that they trust people they know 'Just a little' and 14.9 percent reported 'Not at all'. When considering the trust of South African strangers, 35.0 percent of respondents gave positive responses, with 24.8 percent reporting that they do not trust other South Africans at all. Although not directly comparable to the 2004 data, given that levels of racial segregation in South Africa remain high, greater trust of people that are known is likely to be correlated with trust within ethnic groups, and reduced cohesion with those in other groups. This phenomenon is even starker when considering the responses when asked about trusting foreigners. 61.8 percent of respondents reported that foreigners cannot be trusted at all, and only 14.6 percent provided positive responses.

In the NIDS 2008 survey, respondents were asked hypothetical questions about what the likelihood would be of having their lost wallet containing R200, returned by either a stranger, or a neighbour, with the money inside. 71.3 percent of adult South Africans reported that it was not likely to be returned by their neighbours, and 86.4 percent did not believe it would be returned with the money inside if it was found by a complete stranger. This again highlights, firstly, a low level of trust even in people who are familiar or known to the respondent, and secondly, lower levels of trust in strangers.

When comparing the data across the sources, there is little evidence of improvements in the level of trust between 2004 and 2008. If anything, the 2008 data sources might suggest even lower levels of trust. These data clearly show a lack of trust among South African adults, which according to the theoretical literature might suggest unwillingness to cooperate and work cohesively together, particular between individuals of different ethnic groups, which would negatively impact on economic outcomes. Whilst this analysis is purely descriptive, and cannot ascertain causality, the findings are consistent with the theory insofar as low levels of trust have been confirmed in a society with high levels of diversity. The literature suggests that this tends to result in poor economic prospects.

5.4 Conclusion

This chapter has estimated the key diversity measures available in the literature in order to illustrate more precisely the nature of diversity, as well as how diversity in South Africa has changed over time. In addition, access to public goods and services, as well as infrastructure, has been examined, to highlight the inequality of public goods provision and the changes over time as a result of public policy. In addition, the levels of trust, as proxy for cohesion is South Africa, were briefly discussed in an attempt to highlight some of the effects of diversity on society in South Africa.

Based on the proportions of individuals in the different categories in the descriptive statistics in Chapter Four, it was to be expected that in terms of race and religion, fractionalisation will be low and polarisation will be high; whereas for language and ethnicity, fractionalisation will be high, and polarisation will be low in South Africa. This chapter confirmed these expectations, as summarised in Table 5.8 below. The overarching finding of the various measures of diversity in Section 5.1 is the by most measures South Africa is considered to have moderate to high levels of diversity. The data also suggest that diversity has decreased over time, with the exception of a few indices which have increased over time although remain at moderate levels and are not indicative of high diversity.

Table 5.7: Summary of Diversity Levels and Changes over Time

Index	Group	Δ Over Time	Diversity Level
Fractionalisation	Ethnolinguistic	Decreased	High
	Self-identified Ethnic	Constant	High
	Racial	Decreased	Low
	Religious	Decreased	Low
SDI	Aggregated	Decreased	High
	Disaggregated	Decreased	High
Income BGI	Ethnolinguistic	Decreased	Moderate
	Racial	Decreased	Moderate
	Religious	n/a	Low
Well-being BGI	Ethnolinguistic	Increased	Low
	Self-identified Ethnic	Decreased	Low
	Racial	Increased	Low
	Religious	Decreased	Low
Polarisation	Ethnolinguistic	Increased	Moderate
	Self-identified Ethnic	Increased	Moderate
	Racial	Decreased	Mod/high
	Religious	Decreased	Mod/high

Source: Author's own observations

As noted in Section 5.1, the determination of which measure is best able to account for the impacts of South Africa's diversity on its growth prospects is not within the scope of this dissertation. Nevertheless, the available data have been utilised to examine some of the theoretical mechanisms through which diversity might impact growth. Given the high level of diversity, and reduction of diversity over time, it would be expected that public goods provision and levels of infrastructure would be low and unequal, but improving over time. In addition, the nature of diversity in South Africa would also suggest relatively low social capital and low levels of trust. Examining access to water, sanitation, roads, housing and education, the data suggest that public goods provision was poor and racially unequal in 1993 as would be expected following the apartheid government. Since 1993 there have been notable improvements in public goods and infrastructure provision, correlating with the reduced diversity, as well as highlighting the effectiveness of public policy aimed at curbing the negative impact of diversity on economic outcomes discussed in Chapter Three. Nevertheless, there remains room for improvement, with the African race group having persistently lower access to quality public goods and infrastructure relative to the other racial groups.

In terms of social cohesion, the data highlighted that despite considerable improvements in educational attainment since 1993, only 45.5 percent of South African adults are able to both read and write well in English – one of the dominant languages of business – and the ability to communicate in English is highly skewed towards Whites and Indians, with a much smaller proportion of Coloureds and Africans able to communicate in English. This suggests barriers to communication and reduced social capital which might hamper economic growth. In addition, the level of trust amongst South Africans is low according to data from Afrobarometer 2004 and 2008, as well as NIDS 2008 surveys. In particular, the data highlight that South Africans are particularly distrusting of people they don't know, people from other ethnic groups and even more so of people not from South Africa. The literature suggests that these factors hamper the economy's ability to grow, and thus South Africa's diversity may be resulting in real economic costs.

CHAPTER 6: CONCLUSION

The primary objective of this dissertation was to make an empirical contribution to the understanding of the nature and extent of diversity in South Africa and to determine what this understanding can provide in terms of insight into current public policies and economic growth prospects in South Africa. This chapter will outline the key findings and contributions related to the primary objective, as well as the specific aims of this dissertation.

The first aim of this dissertation was to explain how diversity in society impacts on economic outcomes from a theoretical perspective. Chapter Two began by defining culture in terms of learned behaviours that govern how individuals in society interact with one another, and discussed the use of proxies including ethnicity, race and religion in place of culture which is generally difficult to measure. The importance of education in facilitating social cohesion, in terms of tolerance and trust between cultural groups, was also highlighted. Chapter Two addressed the first specific aim of this dissertation by identifying the theoretical framework of the economic effects of diversity, whereby diversity leads to lower social capital and diverse preferences. These in turn lead to political instability and poor government decision-making – particularly with respect to spending. Diversity tends to result in many negative scenarios including rent-seeking activities within government, reduced effectiveness of redistribution policies, weak and factionalised democracy, poor public goods provision, increased political tensions and increased probability of civil rebellion. It is through political instability and poor decision-making that economic growth is negatively impacted.

The second specific aim of this dissertation was to identify what methods have previously been employed to measure diversity in South Africa, as well as in the international literature, with the aim of understanding the empirical relationship between diversity and economic outcomes. Chapter Three began to achieve this by outlining the various measures used in the empirical literature. Fractionalisation, the most widely used diversity index in the economic literature, measures the probability of two randomly selected individuals belonging to the same group, and is most commonly calculated using ethnolinguistic population groups in society. The Social Diversity index is a slightly more complex fractionalisation index which incorporates more than one cultural grouping – measuring the probability that two randomly selected individuals belong to the same racial, religious and linguistic groups. The Between-Group Inequality index combines the fractionalisation index with income inequality data. This index, at its minimum of zero, would indicate that the average income of all ethnic groups is equal, whilst at its

maximum of one, would indicate that one ethnic group has control of all the income. This index therefore gives an indication of how mean income differs between groups in society. The last diversity measure outlined in Chapter Three is the Polarisation index which attempts to take into account the salience of social divides. Polarisation takes on a value of one when society consists of only two groups of equal size – completely polarised.

The empirical literature examining which iterations of these indices was robustly related to economic growth was somewhat divided. Ethnic diversity has been found to have a significant negative relationship with educational attainment, financial depth and the level of infrastructure, and a significant positive relationship with black market premia – all of which would negatively impact economic growth (Easterly and Levine, 1997; Alesina *et al.* 2003). In addition, Alesina *et al.* (2003) find a negative correlation between diversity and fiscal surplus. Fractionalisation has also been found to hamper knowledge diffusion between groups, supporting the notion that barriers to communication reduce social capital and ultimately lead to poorer growth prospects. Polarisation as an indication of diversity is generally not robustly related to economic outcomes in the same way that fractionalisation is. It has however been found to more accurately predict the incidence of civil war – which could be arguably more likely in a polarised society made up of two large, equally sized groups, when compared to a fractionalised society of many small groups. Overall the empirical literature supports the theoretical framework through which diversity is believed to impact economic outcomes, and the use of all four diversity indices to explain the fact that diversity is bad for the economy creates the expectation that, to some extent, and regardless of which diversity measure is used, they should indicate the same effect.

In terms of diversity measures for South Africa, Chapter Three outlined the numerous fractionalisation, social diversity and polarisation indices calculated for South Africa in the empirical literature. What these indices highlight is that South Africa is considered to be quite highly diverse regardless of which type of index is used. The only exceptions are racial fractionalisation, one instance of ethnic fractionalisation (where it is likely that race was used as the cultural grouping) and one of religious fractionalisation (where quite aggregated religious groups were used). In addition to the indices suggesting high levels of diversity, research into levels of trust in South Africa also highlights low levels of inter-personal trust which is highly unequal across race groups. Controlling for educational attainment and income reduced the degree of racial variation, highlighting that the difference is socio-economic status and access to education are key drivers of low social cohesion in South Africa. In likely response to the high levels of diversity in South Africa, numerous laws and policies were identified that aim to reduce the potential negative impacts that diversity has on economic outcomes. Chapter Three

outlined the Reconstruction and Development Programme developed in 1994 aimed at reducing the inequalities and tensions that existed as a result of the Apartheid regime, particularly with respect to infrastructure. Subsequent policies include the Employment Equity Act, the Promotion of Equality and Prevention of Unfair Discrimination Act and the Broad-Based Black Economic Empowerment Act all essentially aimed at reducing income inequality and ensuring equal opportunity for all South Africans – by encouraging an inclusive economy.

The third specific aim of this dissertation was to make use of nationally representative data to examine the level of diversity in South Africa using the four diversity measures previously discussed, and to assess how diversity has changed over time. Chapter Four examined the data sources available at the time this research commenced, and explained the reasons for utilising the PSLSD 1993 data as a starting point to represent the levels of diversity and access to public goods and infrastructure at the end of Apartheid. The NIDS 2008 was chosen as one of the most recently available data sources that contained questions comparable to the PSLSD, as well as including questions surrounding trust in South Africa. The Afrobarometer surveys were chosen due to their inclusion of self-identified ethnic affiliation, as well as questions which allowed for the calculation of a self-identified well-being score to compare with income inequality. In addition, the Afrobarometer data included trust variables which could be compared with the NIDS data. After examining the descriptive statistics, Chapter Five calculated the measures of diversity in South Africa, making use of ethnolinguistic groups, self-identified ethnicity, as well as racial and religious groupings.
The calculation of diversity in South Africa using the data sources from different points in time highlights that, first and foremost, diversity is not time-invariant. A second important finding was that, contrary to what was previously suggested, the choice of measure did lead to slightly different conclusions for growth prospects. Ethnolinguistic and ethnic fractionalisation decreased from 1993 to 2008, yet remain quite high, whilst polarisation which is relatively low overall, increased. In terms of racial diversity in South Africa, fractionalisation and both Indicesbetween-group indices indicate relatively low racial diversity, although racial polarisation is fairly high. Overall, the measures suggest that South Africa is ethnically diverse, but that diversity has decreased over the fifteen year time period from 1993 to 2008.

The final specific aim of the dissertation was to understand what the degree of fractionalisation might suggest in terms of growth prospects in South Africa, and how this work could be useful for future empirical analysis. In order to address this aim, Chapter Five examined the changes in access to public goods and infrastructure over time. The data highlighted that substantial inequalities in provision of water, sanitation, roads, housing, electricity and education existed in

1993, particularly along racial lines as a result of the apartheid regime. The 2008 data showed notable improvements in access to all of these resources, as well as reduced racial inequality in access. However, it must be acknowledged that considerable racial inequality in access still persists, and large shortfalls still exist despite the numerous ambitious policies put in place to rectify the imbalances of the past. In addition to access to public goods and infrastructure, the levels of trust in South Africa are low, and show little evidence of any notable improvement between 2004 and 2008.

In conclusion, the data suggest that South Africa is diverse in terms of ethnicity although not necessarily in terms of race, and diversity has reduced over time. Historically, access to public goods and infrastructure was poor and highly unequal along racial lines. Together with the reduction of diversity over time, and the implementation of public policy aimed at redressing the ills of the past, improvements have been noted, although shortfalls persist. The levels of social capital remain low, which can also be linked theoretically to reduced effectiveness of policy decision-making and can lead to negative economic outcomes. This ultimately suggests, descriptively, that the current levels of diversity may be hindering economic growth in South Africa. A key area for future research would be to test empirically the causal relationship between the diversity measures and public goods provision, as well as trust in society. The goal would be to determine, firstly, if a causal relationship exists in the South Africa context, and secondly, which of the measures that have been estimated in this dissertation can most accurately and robustly explain the relationship between diversity and economic outcomes.

DATA APPENDIX
A1. Religion in Afrobarometer 2004, 2008 and NIDS 2008

Table A1: Religion in Afrobarometer 2004, 2008 and NIDS 2008

Survey	Question	Options
AFRO 2004	What is your religion, if any?	0=None, 2=Catholic, 3=Protestant (Mainstream), 4=Protestant (Evangelical/Pentecostal), 5=African Independent Church, 6=Traditional religion, 7=Hindu, 8=Agnostic (Do not know if there is a God), 9=Atheist (Do not believe in a God), 10=Christian (General), 11=Muslim, Sunni, 12=Muslim, Shiite, 13=Jehovah's Witness, 14=Seventh Day Adventist, 100=Muslim(general), 101=Assembly of God, 102=Dutch Reform/NG, 103=ZCC, 104=Church of Christ, 105=St. John, 106=AME, 107=VGK, 108=Universal Church, 995=Other, 998=Refused to Answer, 999=Don't Know, -1=Missing Data
AFRO 2008	What is your religion, if any?	0=None, 1=Christian only (i.e., respondents says only "Christian", without identifying a specific subgroup), 2=Roman Catholic, 3=Orthodox, 4=Coptic, 5=Anglican, 6=Lutheran, 7=Methodist, 8=Presbyterian,9=Baptist, 10=Quaker/Friends, 11=Mennonite, 12=Evangelical, 13=Pentecostal (e.g., "Born Again" and/or "Saved"), 14=Independent (e.g., "African Independent Church"), 15=Jehovah's Witness, 16=Seventh Day Adventist, 17=Mormon, 18=Muslim only (i.e., respondents says only "Muslim", without identifying a specific subgroup), 19=Sunni only (i.e., respondents says only "Sunni Muslim", without identifying a specific sub-group), 20=Ismaeli, 21=Mouridiya Brotherhood, 22=Tijaniya Brotherhood, 23=Qadiriya Brotherhood, 24=Shia,25=Traditional/ethnic religion, 26=Hindu, 27=Bahai, 28=Agnostic (Do not know if there is a God), 29=Atheist (Do not believe in a God), 700=Zionist Christian Church, 701=Dutch Reformed (e.g. NGK, NHK, GK, Mission, APK, URC), 995=Other, 998=Refused to answer, 999=Don't know, -1=Missing data
NIDS 2008	What religion are you?	No religion = 1, Christian = 2, Jewish = 3, Muslim = 4, Hindu = 5, African traditional spiritual beliefs = 6, Other (specify) = 7

A2. Mean income per capita

Household Income Per capita was calculated, using PSLSD and NIDS data, by calculating Household Income from a variety of sources outlined in Table A2 below, and dividing by household size. Table A3 outlines the other sources of income contained in 'Other Income'.

Table A2: Household Monthly Income in PSLSD 1993 and NIDS 2008

Variable	PSLSD 1993	NIDS 2008
Household monthly income	Remittances	Remittances
	Take home pay (Regular work)	Take home pay (Regular work)
	Benefits	13th cheque
	Profit share	Profit share
	Travel subsidies	Additional piece rate pay
	Food subsidies	Bonuses
	Housing subsidies	Casual work wages
	Casual work wages	Agricultural income
	Agricultural income	Income from helping friends
	Agricultural subsidies	Other income
	Other income	Profit from self-employment
	Profit from self-employment	Rental income
	Rental income	

Table A3: Other Income in PSLSD 1993 and NIDS 2008

Variable	PSLSD 1993	NIDS 2008
Other income	State pension	State pension
	Private pension/provident fund	Private pension
	Government civil servant pension	Private retirement annuity
	Government poor relief	War veterans pension
	Disability grant	Disability grant
	Workmen's compensation	Workmen's compensation
	Interest earnings	Interest earnings
	UIF	UIF
	NGO food or meals	Child support grant
	Other NGO transfers	Foster care grant
	Government supplementary food scheme	Care dependency grant
	Inheritance	Inheritance
	Maintenance	Other
	Other	

A3. Well-being calculation in Afrobarometer 2004 and 2008

The responses ranging from zero to four for each of the five questions were summed. This resulted in a well-being score for each individual ranging from zero, where they never went without food, water, medicine, fuel for cooking or income, to twenty if they always went without all five basic necessities.

Table A4: Well-being Questions from Afrobarometer 2004 and 2008

Question	Answers
Over the past year, how often, if ever, have you or anyone in your family gone without: Enough food to eat?	0=Never, 1=Just once or twice, 2=Several times, 3=Many times, 4=Always
Over the past year, how often, if ever, have you or anyone in your family gone without: Enough clean water for home use?	0=Never, 1=Just once or twice, 2=Several times, 3=Many times, 4=Always
Over the past year, how often, if ever, have you or anyone in your family gone without: Medicines or medical treatment?	0=Never, 1=Just once or twice, 2=Several times, 3=Many times, 4=Always
Over the past year, how often, if ever, have you or anyone in your family gone without: Enough fuel to cook your food?	0=Never, 1=Just once or twice, 2=Several times, 3=Many times, 4=Always
Over the past year, how often, if ever, have you or anyone in your family gone without: A cash income?	0=Never, 1=Just once or twice, 2=Several times, 3=Many times, 4=Always

All 'Don't Know', 'Missing' and 'Refused to answer' responses had their values removed so as not to influence the overall score.

A4. Access to Public Goods and Infrastructure

Survey respondents were asked about their dwelling type, access to flush toilets and access to piped water in the PSLSD and NIDS surveys. Table 1 provides the questions asked in each survey, and table 2-4 outline the various options that were recorded by enumerators for each question.

Table A5: Public Goods and Infrastructure Questions

Survey	Question
PSLSD 2008	Type of dwelling?
	What kind of toilet does the household use?
	What is the source of water used most often in this household for things like drinking or bathing and washing clothes?
	Is the house connected to an electricity supply?
	Does this community have tarred or dirt roads?
NIDS 2008	Interviewer check! Indicate the type of main dwelling that the household occupies.
	What type of toilet facility is available for this household?
	What is this household's main source of water?
	Does this household have electricity even if currently disconnected?
AFRO 2004	Thinking of your journey here: Was the road at the start point in the PSU/EA paved/ tarred/ concrete?
	Were the following services present in the primary sampling unit/enumeration area: Piped water system that most houses could access?
	Were the following services present in the primary sampling unit/enumeration area: Electricity grid that most houses could access?

Table A6: Access to Piped water in PSLSD 1993 and NIDS 2008

Variable	Categories	PSLSD 1993	NIDS 2008
Piped Water	Yes	Piped - internal	Piped (tapped) water in dwelling
		Piped - yard tap	Piped (tapped) water on site or in yard
	No	Piped - public tap/kiosk	Public tap
		Water-Carrier/tanker	Water-Carrier/tanker
		Borehole	Borehole
		Rainwater tank	Rainwater tank
		Flowing water / stream	Flowing water / stream
		Dam / pool / stagnant water	Dam / pool / stagnant water
		Well (non-borehole)	Well (non-borehole)
		Spring	Spring
		Other	Other
			From a Neighbour

Table A7 Access to Flush Toilet Variable in PSLSD 1993 and NIDS 2008

Variable	Categories	PSLSD 1993	NIDS 2008
Flush Toilet	Yes	Flush toilet	Flush toilet with onsite disposal
			Flush toilet with offsite disposal
	Improved Pit Latrine	Improved pit latrine (VIP)	Improved pit latrine (VIP)
	Other Pit Latrine	Other pit latrine	Pit latrine without ventilation pipe
	Bucket Toilet	Bucket toilet	Bucket toilet
	Chemical Toilet	Chemical toilet	Chemical toilet
	None	None	None
	Exclusions		Bush*
			Other*

*bush and other were excluded due to a minimal response rate of 0.001

A5. Afrobarometer on access to water

In the 2004 Afrobarometer, individuals were not asked about their main source of water. Instead, the survey enumerators were asked to evaluate whether there was piped water available to individuals living in the communities of the enumerated households. It is likely that there was a degree of measurement error in the collection of this type of data, if the enumerators attempted to answer the questions without thorough investigation. When compared to the 78 percent of individuals who had access to piped water within their community in 1993, the percentage was lower in 2004 at 73.3 percent. The 2008 Afrobarometer asked the same question of their enumerators, and found that 78.7 percent of the population had access to piped water in their communities – indicative of some improvements over the four year period. During this round of the Afrobarometer survey, individuals were asked also where their main source of water was situated. Here, 69.5 percent of the population reported that they obtained water from a site within their property, indicating access to piped water, and an improvement in access to piped water over time.

A6. Dwelling type in PSLSD 1993 and NIDS 2008

Table A8: Construction of Dwelling Variable in PSLSD 1993 and NIDS 2008

Variable	Categories	PSLSD 1993	NIDS 2008
Dwelling	Informal Dwelling	Shack	Informal Backyard Dwelling
			Informal Dwelling
	House	House/part of a house	Brick structure on separate stand/yard/farm
	Other Formal	Flat	Flat/Apartment
		Maisonette	Town/cluster/semi-detached
			Unit in Retirement village
	Traditional Dwelling	Traditional dwelling (hut)	Traditional structure made of traditional materials
	Room/ outbuilding	Hostel	Backyard dwelling
		Outbuilding	Room/flatlet
	Other	Combination of buildings	Caravan/tent
		Other	Other

A7. Afrobarometer on educational attainment

In 2004, according to the Afrobarometer survey, the percentage of the adult population with no formal education decreased to 7.3 percent. This can be seen in Table 5.7 below. A greater proportion of the population obtained some secondary education, and 23.4 percent of the adult population had obtained a matric, a large increase from the 1993 figures. Furthermore, 9.1 percent of the adult South African population had obtained some tertiary education. Racial inequality was reduced in 2004, with 21.7 percent of Africans, 23.5 percent of Coloureds, 31.4 percent of Indians and 34.9 percent of Whites having obtained a matric. Unfortunately, at the level of tertiary education, racial inequality persisted in 2004.

Table A9: Educational Attainment in South Africa – Afrobarometer 2004 and 2008

	AFRO 2004	**AFRO 2008**
No formal education	0.062	0.040
Informal Education	0.010	0.017
Some primary	0.143	0.089
Primary	0.082	0.092
Some secondary	0.376	0.325
Secondary	0.234	0.285
Post-secondary	0.055	0.100
Some university	0.011	0.023
University	0.019	0.021
Post-graduate	0.007	0.009

Source: Own calculations, Afrobarometer 2004 and 2008

Notes: The data are weighted. The sample consists of adults aged 18 and older.

A8. Trust in Afrobarometer 2004, 2008 and NIDS 2008

Table A10: Trust Questions in Afrobarometer 2004, 2008 and NIDS 2008

Survey	Trust Question	Possible Answers
AFRO 2004	Generally speaking, would you say that most people can be trusted or that you must be very careful in dealing with people?	You must be very careful
		Most people can be trusted
	How much do you trust each of the following types of people: Your neighbours?	Not at all
		Just a little
		Somewhat
		A lot
	How much do you trust each of the following types of people: People from your own ethnic group?	Not at all
		Just a little
		Somewhat
		A lot
	How much do you trust each of the following types of people: South Africans from other ethnic groups?	Not at all
		Just a little
		Somewhat
		A lot
AFRO 2008	How much do you trust each of the following types of people: Other people you know?	Not at all
		Just a little
		Somewhat
		A lot
	How much do you trust each of the following types of people: Other South Africans?	Not at all
		Just a little
		Somewhat
		A lot
	How much do you trust each of the following types of people: Foreigners living here in South Africa	Not at all
		Just a little
		Somewhat
		A lot
NIDS 2008	Likeliness of neighbour returning wallet containing R200	Not likely
		Somewhat likely
		Very Likely
	Likeliness of stranger returning wallet containing R200	Not likely
		Somewhat likely
		Very Likely

REFERENCES

Afrobarometer (nd) "Sampling Principles" [Online]. Available: http://www.afrobarometer.org/survey-and-methods/sampling-principles (10/08/2012)

Aisen, A., & Veiga, F. J. (2012). 'How does political instability affect economic growth?'. *European Journal of Political Economy, 29:* 151–167.

Alesina, A. and Perotti, R. 1996. 'Income distribution, political instability, and investment'. *European Economic Review* 40:1203-1228.

Alesina, A., Baqir, R. and Easterly, W. 1999. 'Public Goods and Ethnic Divisions'. *The Quarterly Journal of Economics*, 114(4):1243-1284.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S. and Wacziarg, R. 2003. 'Fractionalisation'. *Journal of Economic Growth,* 8:155-194.

Alesina, A., Ozler, S., Roubini, N. and Swagel, P.1996. 'Political instability and economic growth'. *Journal of Economic Growth*, 1(2): 189-211.

Annett, A. 2001. 'Social Fractionalisation, Political Instability, and the Size of Government'. *IMF Staff Papers*, 48(3):561-592.

Atlas Narodov Mira. 1964. Moscow: Miklukho-Maklai Ethnological Institute at the Department of Geodesy and Cartography of the State Geological Committee of the Soviet Union.

Baldwin, K. and Huber, J. D. 2010. 'Economic versus cultural differences: Forms of ethnic diversity and public goods provision'. *American Political Science Review*, 104: 644-662.

Barro, R. J. 1996. 'Determinants of Economic Growth: A cross-country empirical study'. *NBER Working Paper No. 5698.*

Barro, R. J. 1999. 'Determinants of Democracy'. *Journal of the Political Economy,* 107(56): 5158-5183.

Berg, J., Dickaut, J., McCabe, K., 1995. 'Trust, reciprocity and social history'. *Games and Economic Behavior* 10: 122–142.

Bertola, G. 1993. Market structure and income distribution in endogenous growth models. *American Economic Review* 83:1184-1199.

Bhopal R. 2004. Glossary of terms relating to ethnicity and race: for reflection and debate. *Journal of Epidemiology and Community Health*, 58:441-445

Blanco, L and Grier, R. 2009. 'Long live democracy: The determinants of Political Instability in Latin America'. Pepperdine University, *School of Public Policy Working Papers*. Paper 33

Bujra, A. 2002. 'African Conflicts: Their Causes and Their Political and Social Environment'. *Development Policy Management Forum*, Occasional Paper No. 4.

Burns, J. 2004. Race and Trust in Post-Apartheid South Africa. *CSSR Working Paper No. 78*

Burns, J. and Keswell, M. 2011. 'Ethnolinguistic Diversity and the Provision of Public Goods: Experimental Evidence from South Africa'. A Southern Africa Labour and Development Research Unit Working Paper Number 72. Cape Town: SALDRU, University of Cape Town.

Butkiewicz, J. L. and Yanikkaya, H. 2011. 'Institutions and the impact of government spending on growth'. *Journal of Applied Economics*, Universidad del CEMA, 0:319-341, November.

Campos, N. F., Saleh,A., Kuzeyev, V. S.. 2009. Dynamic Ethnic Fractionalization and Economic Growth, Proceedings of the German Development Economics Conference, Frankfurt a.M. 2009, No. 30, Available: http://hdl.handle.net/10419/39941

Carter, D. 2010. "Afrobarometer Data Codebook for Round 4 Afrobarometer Surveys in 20 African Countries" [Online]. Available: http://www.afrobarometer.org/data/data-rounds-merged (10/08/2012)

Collier, P. and Hoeffler, A. 1998. 'On the Economic Causes of Civil War.' *Oxford Economic Papers*, 50:563-73.

Deumert, A. and Mabandla, N. 2009. 'I-dollar eyi one! Ethnolinguistic fractionalisation, communication networks and economic participation - Lessons from Cape Town, South Africa'. *Journal of Development Studies*, 45(3): 28.

Desmet, K., Otuno-Ortin, I., Wacziarg, R. 2015. Culture, Ethnicity and Diversity. *NBER Working Paper No. 20989*

Easterly, W. and Levine, R. 1997. 'Africa's Growth Tragedy: Policies and Ethnic Divisions'. *Quarterly Journal of Economics,* 111(4): 1203-1250.

Egede, L. E. 2006. 'Race, Ethnicity Culture, and Disparities in Health Care'. *Journal of General Internal Medicine,* 21(6): 667-669

Esteban, J. and Ray, D. 1994. 'On the Measurement of Polarisation'. *Econometrica,* 62(4): 819-851

Fearon, J. D. 2003. 'Ethnic and Cultural Diversity by Country'. *Journal of Economic Growth,* 8(2): 195-222

Fearon, J. D. 2002. 'Ethnic Structure and Cultural Diversity around the World: A Cross-National Data Set on Ethnic Groups', unpublished, Stanford University, August.

Fedderke, J. W., Luiz, J. M. and de Kadt, R. H. J. 2008. 'Using fractionalisation Indices: deriving methodological principles for growth studies from time series evidence'. *Social Indicators Research*, 85(2): 257-278, January.

Fukumi, A. 2004. 'Social Diversity, Fiscal policy, and Economic growth: An empirical study with state wise data in India'. No 159, Discussion Paper Series, Research Institute for Economics and Business Administration, Kobe University.

Greenberg, J.H. 1956. 'The Measurement of Linguistic diversity'. *Language,* 32: 109-115

Gurin, P., Dey, E. L., Hurtado, S., Gurin, G. 2002. Diversity and Higher Education: Theory and Impact on Educational Outcomes. *Harvard Educational Review*, 72 (3):330-366.

Habyarimana, J., Humphrerys, M., Posner, D. N. and Weinstein, J. M. 2007. 'Why Does Ethnic Diversity Undermine Public Goods Provision?', *American Political Science Review,* 101(4): 709-725.

Haile, D., Sadrieh, A. and Verbon, H. A. A. 2008. 'Cross-racial envy and underinvestment in South African partnerships'. *Cambridge Journal of Economics*, 32(5): 703-724

Helliwell, J. F. 1994. 'Empirical linkages between Democracy and Economic Growth', *British Journal of Political Science*, 24: 225-248

Hoff, K. and Pandey, P. 2003. 'Why are Social Inequalities so Durable? An Experimental Rest of the Effects of Indian Caste on Performance,' *Discussion Paper*, World Bank, and Pennsylvania State University.

Horowitz, D. L. 1985. 'Ethnic Groups in Conflict'. Berkley, CA: University of California Press

Jackson, K. 2007. 'Why Does Ethnic Diversity Affect Public Good Provision? An Empirical Analysis of Water Provision in Africa'. Dissertation Chapter, University of British Columbia.

Kirwin, M. (2007). Afrobarometer Data Codebook for Afrobarometer Round 2.5 Survey in South Africa 2004 [Online]. Available: http://www.afrobarometer.org/data/data-by-country-n-z/south-africa (31/07/2012)

Knack, S. and Keefer, P. 1997. 'Does Social Capital have an Economic Payoff? A Cross-Country Investigation'. *Quarterly Journal of Economics,* 112(4): 1251-1288

Leibbrandt, M., Woolard, I. de Villiers, L. 2009. "Methodology: Report on NIDS Wave 1, Technical Paper no. 1" [Online]. Available: http://www.datafirst.uct.ac.za/catalogue3/ index.php/catalog/ 175 (31/07/2012)

Lipset, S. M. 1959. 'Some Social Requisites of Demorcacy: Economic Development and Political Legitimacy' *American Political Science Review,* 53: 69-105

Mauro, P. 1995. Corruption and Growth. *The Quarterly Journal of Economics*, 110(3):681-782

Montalvo, J. G. and Reynal-Querol, M. 2000. The Effect of Ethnic and Religious Conflict on Growth. Working paper, IVIE WP-EC 2000-04.

Montalvo, J. G. and Reynal-Querol, M. 2005. Ethnic diversity and economic development. *Journal of Development Economics,* 76: 293-323.

The National Treasury. 1993. 'Budget Review' [Online]. Available: http://www.treasury.gov. za/documents/national%20budget/ (26/04/2012)

The National Treasury. 2009. 'Chapter 1 – Overview of the Budget 2008' [Online]. Available: http://www.treasury.gov.za/documents/national%20budget/2008/review/Default.a spx (26/04/2012)

O'Neil, D. 2006a. Human Culture: What is Culture? [Online] Available:http:// anthro.palomar.edu/culture/culture_1.htm (26/04/2012)

O'Neil, D. 2006b. Ethnicity and Race: An introduction to the Nature of Social Group Differentiation and Inequality [Online]. Available: http://anthro.palomar.edu/ethnicity/ ethnic_1.htm (30.05.2012)

Okediji, T. O. 2005. The dynamics of ethnic fragmentation: A proposal for an expanded measurement index. *The American Journal of Economics and Sociology,* 64(2), 637-662.

Okediji, T. O. 2008. The color of Brazil: Law, ethnic fragmentation, and economic growth. *The Chicago-Kent Law Review*, 83(1):185-198.

Okediji, T. O. 2011. Social fragmentation and economic growth: evidence from developing countries. *Journal of Institutional Economics*, 7:77-104.

Perotti, R. 1996. Growth, income distribution, and democracy: what the data say. *Journal of Economic Growth*, 1:149-187

Persson, T. and Tabellini, G. 1994. Is inequality harmful for growth? Theory and Evidence, *American Economic Review* 84:600-621.

Posel, D., & Hinks, T. (2013). Trusting neighbours or strangers in a racially divided society: Insights from survey data in South Africa. *Journal of African Economies*, 22(1), 136-162.

Posner, D. N. 2004. Measuring ethnic fractionalisation in Africa. *American Journal of Political Science*, 48(October) 844-863.

Ratna, N. N., Grafton, R. Q. and Kompas, T. 2009. Is diversity bad for economic growth? Evidence from state-level data in the US. *Journal of Socio-economics*, 38(6): 859-870.

The Republic of South Africa. 1994. White Paper on Reconstruction and Development. Notice No. 1954 of 1994. Government Gazette, 16085 (353):1-82. November 15.

The Republic of South Africa. 1998. Employment Equity Act, No. 55 Of 1998. South African Department of Labour.

The Republic of South Africa. 2000. Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000. South African Department of Justice and Constitutional Development.

The Republic of South Africa. 2004. Broad-Based Black Economic Empowerment Act No.53 0f 2003. Government Gazette 25899(463). January 9.

Southern Africa Labour and Development Research Unit (1995a). "South Africa - Project for Statistics on Living Standards and Development 1993: Sampling" [Online]. Available: http://www.data first.uct.ac.za/catalogue3/index.php/catalog/5/sampling (10/08/2012)

Stichnoth, H. and Van der Sraeten, K. 2011. 'Ethnic Diversity, Public Spending and Individual support for the Welfare State: a review of the empirical literature'. *Journal of Economic Surveys,* 00(0): 1-26

Taylor, C.L. and Hudson, M. C. 1972. World Handbook of Political and Social Indicators, 2nd Edition. New Haven: CT: Yale University Press.

Tissington, K. 2011. A Resource Guide to Housing in South Africa 1994-2010: Legislation, Policy, Programmes and Practice. Socio-economic Rights Institution of South Africa.

Useem, J., & Useem, R. (1963). *Human Organizations, 22*(3).

Weesner, D. 2011. Value fractionalization: A new measure of diversity. Honours thesis. Williams College, Williamstown, Massachusetts.

Wittenberg, M. (2009). "Weights: Report on NIDS Wave 1, Technical Paper no. 2" [Online]. Available: http://www.datafirst.uct.ac.za/catalogue3/index.php/catalog/175 (31/07/2012)

Data Sources:

Mattes, R. Afrobarometer: Round 2.5 Survey of South Africa, 2004 [dataset]. South Africa: Institute for Democracy in South Africa [producer], 2004. Cape Town: DataFirst [distributor], 2011.

Mcebisi, N., Ismail, Z., Graham, P., Gymiah-Boadi, E., Logan, C., Bratton, M., and Mattes, R. Afrobarometer Round 4: The Quality of Democracy and Governance in South Africa, 2008 [dataset]. South Africa: Institute for Democracy in South Africa [producer], 2008. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2012.

Southern Africa Labour and Development Research Unit (1995b). Project for Statistics on Living Standards and Development (PSLSD) [datasetb]. Version 2. Cape Town: Southern Africa Labour and Development Research Unit [producer], 1995. Cape Town: DataFirst [distributor], 2010.

Southern Africa Labour and Development Research Unit. (2008). National Income Dynamics Study (NIDS) 2008, Wave 1 [dataset]. Version 4.1. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2012. Cape Town: DataFirst [distributor], 2012.

16 November 2012

Ms Sain Camilla Mc Arthur 206515748
School of Accounting, Economic and Finance
Westville Campus

Dear Ms Mc Arthur

Protocol reference number: HSS/1130/012M
Project title: Social Diversity and economic outcomes: The measurement of social fractionalisation in South Africa
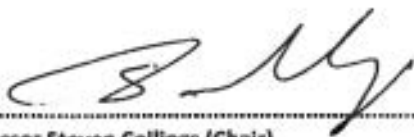
EXPEDITED APPROVAL

I wish to inform you that your application has been granted Full Approval through an expedited review process.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Professor Steven Collings (Chair)

/pm

cc Supervisor: DrClaire Vermaak
cc Academic Leader: Dr Claire Vermaak
cc School Admin.: Mr Sabelo Mthembu

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