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An Exploration of the Relationship between Higher Education and Human Development

The Case of South Africa

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Declaration

I hereby declare that the thesis: **An exploration of the relationship between higher education and human development: The case of South Africa** has not been submitted to any other universities than Agder University College for any type of academic degree.

Jan Halvor Bransdal

Abstract

The apartheid regime in South Africa faced its end in 1994, but its repercussions are still valid for non-white as well as white South Africans. Almost 50 years of systemised discrimination of the non-white populations have set human equity and equality back in most spheres of the public society. The education sector is no exception. Education and higher education in particular is proclaimed an important mean for sustainable development. Higher education is assumed to have positive correlations with economic growth, better health, and employment possibilities. The objectives of my research is to explore the state of human development and the relationship between higher education and human development indicators at different spatial levels in South Africa, and reveal any internal differences according to geographic levels, race, and gender.

The data was gathered during a five-week fieldwork in Pretoria, at the University of Pretoria (UP), and through desk research at Agder University College. Census data and additional statistics and information were gathered from Statistics South Africa, online sources and sources at UP. The conceptual framework of this thesis is based on the prevailing views among theorists and major development organisations on higher education and its role in sustainable development. This implies that attention is given to the ends as well as the means of sustainable development. Descriptive statistics and correlation analysis using SPSS are used as main tools in analysing the data according to the objectives.

This study shows geographical, racial, and gender differences in the state of higher education, economy, health, and employment in South Africa. It also shows inter-racial differences, and internal differences among men and women for the different indicators. The correlation analysis indicated similar patterns for the relationship between higher education and the human development indicators across the geographical levels. Except for inconclusive results on the relationship between higher education and health, the analysis indicated that higher education is positively related to human development. The results highlight the importance of higher education in development and the need for continued policy emphasis on equity and equality in South African higher education.

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List of abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ANC	African National Congress
AUC	Agder University College
BMR	Bureau of Market Research
CHE	Council on Higher Education
CIA	Central Intelligence Agency
CTMM	Pretoria: City of Tshwane Metropolitan Municipality
DFID	United Kingdom Department for International Development
DoE	South African Department of Education
ECLAC	Economic Commission for Latin America and the Caribbean
EFA	Education For All
ESRC	The Economic & Social Research Council
EU	European Union
FIFA	Fédération Internationale de Football Association
FRBSF	Federal Reserve Bank of San Francisco
GDP	Gross Domestic Product
HDI	Human Development Index
HDR	Human Development Report
HEA	Higher Education Act
HEQC	Higher Education Quality Committee
HIV	Human Immunodeficiency Virus
HRD	Human Resource Development
HSRC	Human Sciences Research Council
IFP	Inkatha Freedom Party
IMF	International Monetary Foundation
IOC	International Olympic Organization
MDG	Millennium Development Goals
NCHE	National Commission on Higher Education
NEPAD	The New Partnership for Africa's Development
NORAD	The Norwegian Agency for Development Cooperation
NQF	National Qualifications Framework
NWG	National Working Group
OECD	Organisation for Economic Co-operation and Development
PAC	Pan Africanist Congress
PPP	Purchasing Power Parity
SALGA	South African Local Government Association
SSA	Statistics South Africa
ToR	Terms of Reference
UDHR	Universal Declaration on Human Rights
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization

UNU	United Nations University
WCED	World Commission on Environment and Development
WCHE	World Conference on Higher Education
WDHE	World Declaration on Higher Education
WHO	World Health Organisation
WSSD	World Summit on Sustainable Development

Chapter 1
Introduction

1.1 Introduction

This study examines the relationship between higher education and human development at a variety of spatial levels in South Africa. South Africa is a country institutionalised by race. The social inequalities of the past were, and are, deeply embedded and reflected in most spheres of social life and this has left its mark on the educational system. Social, political and economic inequalities of race, gender, institutional and spatial nature inherited from the apartheid period has shaped, and continue to shape higher education in South Africa (Badat 2004). An unequal access to and lack of equity in the educational system was a well-known fact during the apartheid regime and presently an issue of concern and priority in the following transition period.

Since the end of apartheid in 1994 dramatic changes have taken place in post-apartheid South Africa. Economic growth and social development have been under an enormous pressure through various development policies. The shortage of skilled human resources has been a constraint for accelerating and sustaining development in the country (Pillay 2006, p.1). In order to meet the demand for economic and social development the focus has to be shifted from natural resources to the development of people's resources. And this challenge of human resources development (HRD) has to be of national concern through policy-making and implementation (Lynham & Cunningham 2004, p.1). A number of policies addressing equity and equality in the educational system have been launched (Cloete et al. 2004). In this context, this study explores the relationship between higher education and three human development indicators; income, age, and unemployment. This exploration forms the backbone of the thesis together with an examination of the current status of South Africa's higher education system, income, age, and unemployment ratios.

The exploration is conducted at the province, municipality, and sub-place level in South Africa to get an indication on growth, or lack thereof, at a variety of geographical levels. An initial investigation into different geographical areas indicated internal differences in several aspects in the country which are perceptible on the province level as well as at the sub-place level. Is this the case for the relationship between higher education and the human development indicators? Different demographic patterns, economic patterns, productivity, health indications, education, etc. are all aspects that called for a diversified geographical range of execution.

The exploration is also investigated according to two racial groups; white and non-white to reveal any racial differences in the relationship between higher education and human development. The political emphasis on bringing equity and equality into the higher education sector manifests itself through the numerous policies launched in the post-apartheid period. Are there indications that the South African government's efforts have resulted in more equity and equality in higher education and coherent significant correlations between higher education and human development indicators?

Females have traditionally been outdistanced by the males on the higher education arena in South Africa, and in the world. The World Bank (2006c), World Economic Forum (2006),

UNESCO (1998), DFID (2006) stress the importance of promoting gender equality and empowering women in a sustainable development context. The women's liberation has made its impact in South Africa as well, with women now constituting the majority of students enrolling in higher education institutions in the country (CHE 2004). Is this female entry into higher education reflected in other human development indicators?

A fieldwork at the University of Pretoria (UP) was undertaken in order to get access to the required information for this study. Census 2001 data was used as main source of data for this study along with other information obtained from UP. Descriptive statistics and correlation analysis are the main methods of analysis employed for exploring the objectives.

1.2 Background and rationale

Issues regarding the improvement of the human wellbeing have been on the political agenda worldwide. Various initiatives press the need to improve human wellbeing and entice human development. Short-term and unsuccessful attempts for development have enforced the emphasis on sustainability. The main objective of the Master of Science program in Development Management at Agder University College (AUC)/United Nations University (UNU) is aimed at sustainable development with special emphasis on development countries. This is considered of key importance to support advances in other spheres, such as science, technology, legislation and production (AUC 2007). The rationale for selecting this topic based on this objective is that higher education initially is assumed to be an important factor for human sustainable development. The World Bank (2002, 20061, 2006b), UNESCO (2007), Moja (2002), UN (2004), NORAD (2003), DoE (n.d.), and others argue that higher education is essential for achieving sustainable development. A personal fervour of education and higher education in particular also influenced the selection of topic.

The rationale for choosing South Africa as my study area is a combination of the unique historical background the country possesses and personal interest in the country. South Africa under apartheid strongly discriminated against the non-white majority population. The discrimination was especially evident in the education sector. Despite the policy initiatives launched and a remarkable increase in the number and proportion of non-white students in higher education institutions, the non-white population is far from closing the educational gap in South Africa. An exploration of the relationship between higher education and human development indicators for the white and the non-white population groups in South Africa and any differences therein will test and highlight higher education's assumed impact on human development. Contrasted to for example, the United States and the United Kingdom where the white majority population suppressed the non-white minority population through public rules and regulations (Commission for Racial Equality n.d.; The History Channel 2007), in South Africa the white minority population suppressed the non-white majority population for decades through public rules and regulations. Despite a praiseworthy non-violent transition process to end apartheid and the establishment of a democracy for all racial groups, the histories from the United States and the United Kingdom indicate that achieving equity and equality in all the different spheres of society is a long-lasting process. A formal reconciliation between the racial groups does not necessarily imply immediate equality in all respects. An exploration of the relationship between higher education and human development in exactly this country provides an indication on the state of the process towards equity and equality.

The geographical and demographical structures of South Africa are also rationales for selecting this country for this study. It is a vast country divided into nine provinces which are diversified in size, population composition, productivity etc. (SSA 2001). An exploration of the relationship between higher education and human development indicators on different spatial levels contrasts geographical differences on education and human development. The rationale for an explicit focus on Pretoria: City of Tshwane Metropolitan Municipality (CTMM) is the contacts in this area and the relation to the UP. The possibility of exploring the relationship between higher education and human development indicators on a sub-place level of a municipality together with information from UP further strengthens the rationale for selecting CTMM.

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1.3 Objective of the study

The main objective with this research is to explore the relationship between higher education and three different human development indicators; income, life expectancy, and unemployment for the Republic of South Africa.

1.3.1 Sub-objectives of the study

- To explore any racial inequalities in the relationship between higher education and three different human development indicators; income, life expectancy, and unemployment.
- To explore any inequalities between males and females in the relationship between higher education and three different human development indicators; income, life expectancy, and unemployment.
- To explore any inequalities in the relationship between higher education and three different human development indicators; income, life expectancy, and unemployment dependent on spatial level analysed; provincial, municipal, sub-place.
- To explore how the development in the composition of students of University of Pretoria correlates with the findings done in the census data.

1.4 Thesis outline

This thesis is organised in 7 chapters. This introductory chapter is followed by a historical background to the study provided in **Chapter 2**. This chapter gives an overview of the historical and political context of South Africa from the colonial period up through the apartheid era to the ongoing transformation period. Special emphasis is given to the historical development in the sector of education. **Chapter 3** explains the theoretical framework, and includes a discussion and a literature review on how higher education and sustainable human development is related. A theoretical basis for the different concepts and aspects used in the research is provided. In the following chapter, **Chapter 4**, a description of the study areas is given. The theoretical aspects are here put in the South African context. In **Chapter 5** the methodology and research approach that lie behind the research is discussed. The methodological approach will illustrate the data collection and the methods that have been used in the field. **Chapter 6** comprises the findings and the analysis of this study. First, the

status of the higher education, income, age, and unemployment is explored for the different spatial levels, population groups, and gender through descriptive statistics and discussed. The relationship between higher education and the other three human development indicators are also explored through correlation analysis and discussed. A case of UP will highlight and exemplify some of the main findings. Finally, some limitations will be discussed. **Chapter 7** concludes the findings and the results of the analysis are summed up and highlighted. Suggestions for further research are also provided.

Chapter 2
Historical background

"If there are dreams about a beautiful South Africa, there are also roads that lead to their goal. Two of these roads could be named Goodness and Forgiveness"

Nelson Mandela

2.1 THE COLONIAL HISTORY (1652-1961)

South Africa's history is characterised and formed by colonisation from European countries. The first white people set foot and established a foothold in South Africa in 1652 when the Dutch East India Company established a watering station at the Cape of Good Hope. This southernmost tip of South Africa was a strategically important point in the rich trade between the East and Europe. In order to increase the protection of this important watering station the Dutch developed an unplanned colony. In addition to the armed protection needed for the watering station, a number of Dutch farmers came to South Africa together with some German and French settlers.
These colonisers made use of the local inhabitants and slaves imported from Java, Madagascar, East Africa, and the West Indies as labour. The settlers soon faced disputes with the local inhabitants over the use and division of the land. These early disputes led to an early physical separation of the white settlers and the local people in South Africa. Racially motivated incompatibilities occurred already at this stage when mixed marriages were prohibited by law (Parker 1972). After the arrival at the Cape segregated schooling already took place and culminated in the creation of a separate school for enslaved children in 1685. The education system was religiously based with the objective to make the enslaved children more economically valuable to the Dutch and indoctrinate them with the belief that the Dutch culture was superior to their own (Mabokela 2000).
The vast landscape and the available slave labour encouraged the Dutch frontier farmers (trekboers) to continue exploring South Africa, and they moved east and north from the Cape to make room for more immigrants. These Dutch frontier farmers now consider themselves as the first humans to settle on this land and they consider themselves as Afrikaaners.
The Afrikaaners were cut off by the dramatic turmoil in Europe and America during the eighteenth century, including the French Revolution (1789-1799) and the American Revolution (1775-1783). The religious enlightenments that occurred therefore did not influence the Afrikaaners to any significant extent. Parker (1972) suggests that this fact marked the Afrikaaners' personal characteristics and behaviour as they held on to a rather conservative discourse. A self-reliant toughness, endurance, antipathy to official authority, suspicion of new ideas and new people, and introverted individualism were some of the resulting characteristics that might serve as an element in the explanation of the more recent apartheid system in South Africa.

The British first arrived in 1795 during the Napoleonic Wars and gained control of South Africa in 1802. The arrival of the British brought even more complexity into the racial issues in South Africa. British rule, laws, justice courts, education systems, and manners were not properly understood by the Afrikaaners. English became the official language and the education system previously influenced by the Dutch Reformed Church was re-directed towards an Anglicising in the Cape Colony. The British policy for educating the Africans took the form of missionary schools teaching religious doctrine. The policy received different reactions by the African leaders (Mabokela 2000).

Everything was changed in order to reflect the interests of the British, including the introduction of English as the official medium for communication in the 1800s which caused disgust and a discussion among the Afrikaaners, and led to language policy debates which continue in South Africa even today. The British additionally abolished the well-established slavery in South Africa in 1834.
To get away from the British and preserve the Dutch language and traditions many Afrikaaners migrated further north, during what is known as the Great Trek of 1836. The increased access to land was the reason provided for moving away from the traditional Dutch and British territories. However, the Dutch faced some competition for the land further north as African tribes (Bantu) moved south from central Africa. The competition for land resulted in several violent encounters between the Afrikaaners and the Bantus in which the Afrikaaners usually got the best of.
The disputes between the British and the Afrikaaners continued throughout the 1800s and were further enflamed by the discovery of gold and diamonds in the Dutch-dominated areas in and around Johannesburg. The ongoing conflict culminated in the Boer war from 1899 to 1902 and involved British, Dutch/Afrikaaners, French, Germans, and native South Africans. The British victory in the Boer war brought temporary settlement as where the British continued to dominate law-making. The recent discovery of gold and diamonds required large numbers of cheap labour in the mines which was indirectly reserved for the Africans and this created a new class of people which coincided with racial and cultural characteristics which again added more fuel for a segregated society (Mabokela 2000).
The late 1800s and the early years of the 1900s resulted in racial issues becoming more formalised. In the 1904 census there were made distinctions between 'Whites, Bantus, and Coloureds', a trend which was also expressed in the area of education. Education for Whites was expanding and made more formalised while education for the Blacks remained reserved for the missionary schools which constantly lacked funds. Educated Blacks were seen as a threat to the mining industry and cheap labour. The black population also did not have any control over their economic and social mobility, the educational curriculum, and many other social mechanisms necessary to develop.

The first higher education institution for white South Africans was established in 1829, and six higher education institutions were established before the first university for black South Africans was established in 1916. Paradoxically, after opening up for higher education for black South Africans their voting rights were removed by law in 1936. It should be noted in this respect that the African National Congress (ANC) was established in 1912. This law is characteristic for the continuously increasing segregation that took place in South Africa under J. Smuts and J.B.M. Hertzog's regime in the first half of the 20th century. This increasing segregation between races established in the post-World War II period was not approved by the rest of the British Commonwealth and the United Nations. South Africa however continued their political discourse under the National Party and formalised it towards what we now know as 'apartheid' (meaning separateness in Afrikaans). A number of apartheid laws were initiated throughout the 1950s, including the Prohibition of Mixed Marriages Act (1949), the Group Areas Act segregated residence by race (1950), the Communist Party being outlawed (1950), the Separate Amenities Act which separated most public areas and facilities according to race (1953), the Native Labour Act which forbade black people to strike and join labour unions (1953), Bantu Education Act separated races in primary and secondary schools (1953), Urban Areas Act limited black people's right to remain in towns (1956), and the Extension of University Education Act which segregated higher education racially (1959) (Parker 1972).

The more extreme apartheid political discourse finally became too much for the British Commonwealth and after a number of inquiries made by the UN and the British Commonwealth regarding change of discourse away from apartheid the Prime Minister in South Africa, H.F. Verwoerd declared South Africa an independent republic the 15th March 1961 (South African History Online 2007).

2.2 THE APARTHEID ERA (1948-1994)

One could easily claim that 1961 was the start of the apartheid era if you consider that the colonial period in South Africa lasted until the independence in 1961. However, the whole colonial history indicates a prolonged process of segregation and racism turning into 'apartheid' in the South African society. Even though segregation had existed in South Africa for centuries before and was further strengthened by the mining industry, the year 1948 is often considered a turning point in South Africa and the start of the apartheid era. The Afrikaaner-dominated National Party under Prime Minister D.F. Malan gained political power in 1948 and in the following years the party led a relatively extreme apartheid policy compared to previous governments. The numerous laws and regulations implemented by this government during the 1950s resulted in the suppression of the non-white population groups concerned most aspects of daily life (as shown in section 2.1).

The international pressure on the South African government increased throughout the 1960s and the country was sanctioned in several aspects by the international community because of the apartheid policy. The Sharpeville massacre in March 1960 where the police shot and killed 69 men, women, and children in a peaceful demonstration in Sharpeville also drew lots of attention to South Africa and the ongoing racial issues. The ANC and the Pan Africanist Congress (PAC) parties were both banned in the aftermath of the demonstration and massacre in Sharpeville in which thousands of Blacks were also arrested and accused of causing unrest and violating the law. Numerous minor clashes between the government and the black population over apartheid issues took place at the same time as United Nations Educational, Scientific and Cultural Organization (UNESCO) stated that apartheid itself was the cause of conflict in South Africa. The United Nations (UN), the International Olympic Committee (IOC), Fédération Internationale de Football Association (FIFA) among others condemned the racial discrimination and reacted with different sanctions to this apartheid regime considered to be *sui generis* (South African History Online 2007).

In 1970 the conflict and apartheid policies continue hand-in-hand as the Bantu Homelands Citizenship Act was launched and stripped the Blacks from their South African citizenship and reassigns them to their respective homelands. The continued suppression in so many areas of life naturally provoked the discriminated population groups and led to the Soweto Riots in 1976, when mass protests erupted over the government's policy to enforce education in Afrikaans rather than English. Ten-thousands of students marched to Soweto in protest. More than 600 people were killed in the clashes between protesters and security forces trying to break up the masses (BBC 2007).
The massive uprising continued in various forms into the 1980s. Strikes, boycotts, mass meetings, stayaways, more international sanctions, disinvestments, and insurgent attacks against the government occurred rather frequently up through the first half of the 1980s. Students were especially active and responsible for these demonstrations. As a response to the

uprisings and increasing domestic and international pressure, the South African government offered a constitutional reform under the University Amendment Act of 1983. This act was of significant matter to the black population as it legalised the admission of black students to historically white universities (Mabokela 2000). However, the attempt to reform the constitution was regarded as rather farcical and made the non-white population even more frustrated. This reaction signalled the start of an even more unrelenting opposition against the system and the start of the final downfall of apartheid (Clark & Worger 2004).

The Afrikaaners explained apartheid not as political domination and economic exploitation but as the only way for the four racial groups to progress with the least hindrance in their separate spheres (Parker 1972). Because of the different stages of development in which the different races found themselves in, the government believed that each racial group had to be developed separately. In order to ensure the desired development, the central government took more control over previously private controlled education institutions. The missionary schools for Blacks were replaced by government controlled schools that were not compulsory for black children and youths to attend, in contrast to the compulsory schools for Whites. The Blacks were taught in their native language in school and were thereby excluded from participating in official communication through English and Afrikaans unless they took separate courses in English and Afrikaans. A very small proportion of the black students chose to go beyond the first eight years of schooling (Parker 1972). In other words, the different races had to serve separate duties in the society. By establishing separate higher education institutions for the black South Africans several goals in the apartheid policy were fulfilled. It legitimated and solidified the whole idea of racial separation (Mabokela 2000). It also provided necessary personnel to administer and support structures in newly created homelands (Gwala 1988; Subotzky 1997 cited in Mabokela 2000), and maintained and reproduced the subordinate social and economic position of Blacks (Christie and Collins 1984 cited in Mabokela 2000).
In 1989 F.W. de Klerk replaced P.W. Botha as president of South Africa. This was the start of a rapidly changing wind in South African politics. The ban of several of the political parties, e.g. ANC, was lifted and many political prisoners were freed. This opened up for talks regarding a multi-party government involving the Black parties. The apartheid laws were repealed, and the international community responded by lifting the sanctions enforced on South Africa.
In April 1994 the ANC wins first non-racial elections and Nelson Mandela became the first black president. The Commonwealth membership was restored, and South Africa took its seat in the UN General Assembly after 20 years of absence. The apartheid era was officially over.

2.3 THE TRANSFORMATION PERIOD (1989-T.D.)

Despite 1994 generally being generally recognised as the year in which the apartheid era ended, the transformation process began in 1989 when then President de Klerk repealed apartheid laws and discussed free elections for all people in South Africa. The lifting of the ban on the ANC, PAC, and other anti-apartheid organisations and freeing of protagonists like Nelson Mandela and others, saw a new direction being determined, even if President de Klerk in 1990 in an official speech ruled out a black majority ruling in South Africa.

Despite the dramatic political changes, or perhaps because of the dramatic political changes taking place during 1990, a lot of fighting between groups of Blacks (mainly the Inkatha Freedom Party (IFP) and ANC), and between Blacks factions and the police desecrated the start of the transformation period. The ANC and the government however persisted in their negotiations for a peaceful solution towards a fully democratic South Africa, and in 1993 an agreement was reached to design an interim constitution. The constitution stated that "Everyone is equal before the law and has the right to equal protection and benefit from the law", which included "the full and equal enjoyment of all rights and freedoms" (South African Constitution 1996). Further agreements were made on free elections for all racial groups and a formation of a government of national unity (Fiske & Ladd 2004).
The dramatic changes and the eventual black president in office raised the expectations and the demand for economic and social development on the background of the new constitution. It was soon realised that in order to meet the increasing demand for economic and social development the focus had to be shifted from natural resources and the much relied upon mining industry, to the development of human resources. The challenge of human resources development (HRD) had to be of national concern through policy-making and implementation (Lynham & Cunningham 2004, p.1).
At the core of this development was education as a whole, and higher education in particular. Decades of underinvestment in school facilities and teachers serving black students resulted in an incredible challenge to implement and enforce "the new start" in the early 1990s. Revising the constitution and admission policies, and implementing equal financial support for education institutions are all great leaps in the right direction, but do not serve as complete and satisfactory solutions for straightening out the aftermaths of apartheid (Fiske & Ladd 2004). Fiske & Ladd (2004) claim that in order to achieve racial equity in education three standards need to be fulfilled; equal treatment, equal educational opportunity, and educational adequacy. John Rawls' two principles of justice;

> "(a) Each person has the same indefeasible claim to a fully adequate scheme of equal basic liberties, which scheme is compatible with the same scheme of liberties for all; and
> (b) Social and economic inequalities are to satisfy two conditions: first, they are to be attached to offices and positions open to all under conditions of fair equality of opportunity; and second, they are to be the greatest benefit of the least-advantaged members of society" (Rawls 2001, p.42)

In order to achieve these standards many aspects of society need to be influenced and changed through a democratic process transparent for all the people involved.

2.3.1 THE POLICIES

As a response to this complex challenge, a number of policy initiatives were launched in the higher education sector during the 1990s. The transformation process going on in the higher education sector is divided into three phases of different principles, goals, policy initiatives and outcomes. The first phase from 1990-1994 is concentrated mainly on principles, values and missions in which the state was supposed to play the major role. The second phase from 1995-1998 was strongly marked by the new post-apartheid government. A new policy framework was emphasised with the new constitution of democracy and the Bill of Rights in place in the mid 1990s, the White Paper on Higher Education, and the higher Education Act in 1997 as the major milestones. However, despite this course of reform, South Africa was rated 47 out of 59 countries in terms of competitiveness, with its labour force being among the least skilled (Popenoe et al. 1997 cited in Lynham & Cunningham 2004). The third phase

from 1998-2003 focused mainly on the financial and human resources available for the transformation. During these years there was an intense activity over a wide front in order to transform higher education to serve new social goals and imperatives (Cloete et al. 2004). More specifically, South Africa's government has during the years preceding the end of apartheid and up till today launched a number of different legislative initiatives in order to address the demands in higher education following the aftermath. Table 2.1 below presents some of the key higher education policy initiatives, processes and products launched in the period from 1990 to 2003.

Table 2.1: Education policy initiatives 1990-2003 (Source: Cloete et al. 2004)

Year	**Initiative**	**Product**
1990	Policy proposals	Establishment of the National Education Policy Investigation
1992-1994	Policy developments	Policy proposal by University Staff Associations, Education Policy Unit, and others. ANC policy statement on H.E.
1995	Establishment of National Commission on Higher Education (NCHE)	Publication of *A Framework for Transformation.*
1997	Ministry initiatives to develop Green Paper and White Paper on H.E., and legislation	Release of Green Paper. Release and adoption of Education White Paper 3: *A Programme for the Transformation of H.E.* Release of a Bill on H.E. and adoption of Higher Education Act (H.E.A.).
1997 onwards	Requirement for H.E. qualifications to be registered on National Qualifications Framework (NQF). Need for outcome-based restructuring.	Extensive curriculum and programme restructuring.
1998	Public call for nominations to the Council on H.E. (CHE)	Establishment of CHE to advise the minister on all matters related to H.E., perform quality assurance through H.E. Quality Committee (HEQC), and report to Parliament.
1998 onwards	National and institutional initiatives for planning.	Institutional planning guidelines by ministry.
1998 onwards	Ministry initiative to develop new funding policy.	New funding policy framework by ministry. More goal-oriented.
1998 onwards	More Ministry initiatives on H.E.	Registration of private H.E. Amendment of Higher Education Act.
1998 onwards	Requirement that all new H.E. programmes be accredited for public funding.	Interim framework, processes, criteria, and structures for accreditation.
1998	Consolidation and extend financial aid to needy students	National Students Financial Aid Scheme Act of 1999. 200,000 needy students funded.
1999 onwards	National quality assurance	Establishment and launch of HEQC. Policy framework for quality assurance in H.E. in addition to several quality assurance related documents and initiatives in progress.
1999	Develop new academic policy for structure, duration, nomenclature	CHE production of new academic policy for programmes and qualifications in H.E.

	of qualifications and programmes.	(2001)
1999 onwards	Restructure the institutional landscape (shape and size) of H.E.	CHE releases: *Towards a New H.E. Landscape: Meeting the Equity, Quality and Social Development Imperatives of S.A. In the Twenty-First Century (2000).* Ministry launch National Plan for H.E. National Working Group (NWG) releases: *The Restructuring of the H.E. System in S.A.* – and proposes to reduce on institutions. The Cabinet approves reduction from 36 to 23 public institutions.
2001	Review cooperative governance.	CHE investigation due to problems at numerous institutions. Amendment to H.E.A. to reduce size of councils of institutions.
2002	Distance education request.	CHE establish task team to investigate a range of issues on distance education.
2003	Advise on use of terms and offer degrees and post-graduate qualifications.	CHE establishes project under auspices of its Shape and Size Standing Committee.

The importance of education is evident in the policies and the new constitution in South Africa. The fact that any South African has an unconditional right to basic education reflects the vital importance and position of education in the apartheid system as well as in the struggle *against* apartheid.
These policies ought to have a great explanatory value when it comes to explaining the changes in higher education in this period of time. The changes have made themselves evident throughout the following years. In 1978 South Africa's segregated institutions enrolled 150,000 students, only 9 percent of whom were black South Africans. In 2003 the proportion of African students had grown to 60 percent and their numbers had soared from 191,000 in 1993 to 404,000. The white student population shrank, from 47 percent (223,000) in 1993 to 27 percent (182,000) in 2002. The proportion of Coloured and Indian students has been static. Women, who were 43 percent of all students in 1993, comprised 54 percent of students by 2002. In other words, the number of black students did not occur entirely at the expense of white students, as there was a huge overall increase in the student population. Student numbers soared from 473,000 in 1993 to 718,000 in 2003, pushing up the higher education participation rate to nearly 20 percent of South Africans aged 18 to 24 years (Cohen, n.d., SSA, n.d.).

Chapter 3

The Theoretical Framework and Literature Review

"Education is the most powerful weapon which you can use to change the world"
Nelson Mandela

3.1 Introduction

This theoretical framework provides the theoretical foundation and the starting point for this research. It describes how the different aspects of the thesis are linked together and how they provide a rational for conducting this exploration study. A comprehensive review of relevant and acknowledged literature on the different aspects of the research is comprised within this framework.

Education is widely accepted as a leading instrument for promoting economic growth on both the private and the social arena (Todaro & Smith 2003, pp.379-392; UNESCO 2005). For Africa, where growth is essential if the continent is to climb out of poverty, education is particularly important. There is a longstanding belief that primary and secondary schooling are more important than tertiary education for economic development. As a result the international development community has encouraged African governments' to develop the higher education sector to a much larger extent. Recent evidence suggests that higher education can produce both public and private benefits, for example by Todaro & Smith (2003, p.384). The private benefits for individuals are well established, and include better employment prospects, and higher income. These benefits result in better health and improved quality of life. Public benefits are less widely recognized because of the distrust in tertiary education as a vehicle for economic development, but individual gains can also benefit society as a whole. Higher earnings for well-educated individuals raise tax revenues for governments and ease demands on state finances. They can also result in greater consumption, which benefits producers from all educational backgrounds (Bloom et al. 2005).

3.2 Sustainable Development

The concept of 'sustainable development' is widely used when discussing the development of countries as well as human beings. The concept is commonly defined according to the Brundtland Commission and implies a development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs (WCED 1987). Sustainable development is a universal concept and a universal goal for all societies worldwide. It not only embraces the economic or environmental spheres of a society, but is a process of change that enables human beings to realize their potential (Clark 1991, p.36). It is not about just having more, but also about being more (Pratt & Boyden 1985, p.13 cited in Slim 1995, p.145). Even though sustainable development is claimed to be a universal concept the most common approach to the concept is known as the Washington Consensus and can hardly be recognised as a universal and international consensus. The Washington Consensus is merely a consensus between the White House, the European Union (EU), the World Bank, and the International Monetary Fund (IMF) and has been the dominant approach to development from the early 1980s to the present. The consensus recommends that governments should reform their policies and, in particular: (a) pursue macroeconomic

stability by controlling inflation and reducing fiscal deficits; (b) open their economies to the rest of the world through trade and capital account liberalization; and (c) liberalize domestic product and factor markets through privatization and deregulation (Slim 1995; Gore 2000). This implies that the discourse on sustainable development is dominated by a western, democracy-centred mentality and not a global and universal perception of the concept. This is an important aspect to consider when defining and discussing sustainable development, or when discussing certain aspect of sustainable development, such as higher education.

Sustainable development should therefore be used with caution as it is a concept not without its difficulties and controversies. Bonnett (2002) argues that sustainable development is heavily contested and subject to internal contradictions when it deals with conservation and development at the same time. This provides a breeding ground for epistemological difficulties. Stables & Scott (2002) highlight further that 'sustainable development' easily could turn into a compound term on which politicians in a democratic society could resort on, even if its components are perceived to be of opposite aspirations. Despite the difficulties and controversies related to sustainable development as a concept it is commonly accepted and widely used within the development debate. The reason for its popularity and wide acceptance is much due to the great political appeal it gets by bringing together conservation of non-human nature at the same time as it allows opportunities for human aspirations to develop (Le Grange n.d.). The widespread acceptance and the lack of better adequate alternatives make it rationale to use sustainable development in this theoretical framework and in relation to higher education

3.3 Higher Education

Higher education broadly refers to all post-secondary education, including but not limited to universities. Higher education is a network of institutions that support the production of the higher-order capacity necessary for development (World Bank 2006a).

Higher education, and education in its broadest sense, is recognised as an important means of achieving sustainable development. "Indeed, higher education in Africa can make a significant contribution in achieving the United Nations Millennium Development Goals (MDG's) as well as the Education for All (EFA) targets" (UNESCO 2007). The statement by a UN organisation manifests the central and important position higher education has in today's development discourse. The MDGs are some of the most important units of measurements for sustainable development. The World Bank points more directly towards higher education and claims that improved and greater access to higher education institutions together with effective national innovations systems can help a developing country progress toward sustainable achievements in the MDGs; and particularly those goals related to all levels of education, health, and gender equity. Knowledge and advanced skills are critical determinants of a country's economic growth and standard of living as well. Learning outcomes are transformed into goods and services, greater institutional capacity, a more effective public sector, a stronger civil society, and a better investment climate. Good quality and efficient higher education and research can be essential parts in this transformation (World Bank 2006b).

The World Bank (2002) sees higher education as an important contributor for development in several aspects. First, higher education can contribute to economic growth by supplying the necessary human resources for an economy becoming more knowledge driven. Second,

higher educations have the potential of increasing access to education and in turn increase the chance for employment for those who have the necessary skills. Higher education may also have a trickle-down effect for the lower levels of education. More trained personnel in primary and secondary schools can contribute to an overall improvement of standards in the education system (Moja 2002).
The UN framework of political recommendations designed to protect the environment and encourage nations to move towards achieving sustainable development in the 21st century, called Agenda 21, follow the same line to a great extent by stating that "*Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues*" (UN 2004).
Norway and NORAD (Norwegian agency for development) states that dynamic secondary and higher education are crucial for the development of necessary knowledge and expertise needed for a sustainable development. The organisation highlights the formulation of national policy on social sector issues, technology and private sector development as central areas in this process (NORAD 2003). South African officials have a vision in line with these perceptions and positions on higher education and sustainable development as the Department of Education (DoE) states that "*Our vision is of a South Africa in which all our people have access to lifelong education and training opportunities, which will in turn contribute towards improving the quality of life and building a peaceful, prosperous and democratic society*." (DoE n.d.). These statements and perceptions on the relationship between higher education and sustainable development coming from rather different camps are nevertheless rather similar in essence.
Although higher education is envisaged as an important means for sustainable development and a vital part of the current discourse for sustainable development, Moja (2002) points out some important incidents in which *the role* of higher education is unclear and not of sufficient concern in central forums such, e.g. the MDGs and the World Summit on Sustainable Development (WSSD). Simply being on the agenda is not equal to being of concern. A good example on this issue is The New Partnership for Africa's Development (NEPAD) where higher education was to have been a cornerstone in the renewal strategy in Africa but was left with lack of participation (Moja 2002, p.3).
Despite the widespread consensus that higher education has contributed to countries' development and continues to do so by providing necessary human resources to the national economies, it is criticised for not dealing directly with poverty reduction issues. In Moja (2002) it is argued that there are data that correlate the level of participation in education to the levels of development. Paradoxically, even if education is a very important tool for achieving sustainable development it can also contribute to reproducing an unsustainable society by being a part of the problem as well as the solution. It occurs when the education is replicating the dominant social, cultural, political, and economic norms in the respective society (Sterling 1996, p.18). Public schools being a part of the formal sector in a country may more or less unconsciously perform such a replication. In order to avoid this dilemma and remain status quo the change has to take place on the most fundamental level in the educational sector. It is there the real impact will take place.

In a world economy becoming increasingly more dependent on skills and knowledge the importance of higher education in development is increasing simultaneously. The global village is getting smaller and since both developing and industrial countries benefit from the dynamics of the knowledge-based economy, the risk of getting ousted along the way is increasing. The capacity for countries to adopt, disseminate, and maximize rapid

technological advances is crucial and dependent on adequate systems of higher education (World Bank 2006b).
In order to adapt higher education in an increasingly more knowledge-based economy and world demand there are several guidelines and yardsticks which need to be paid attention to in order to maintain the human rights, e.g. race and gender etc. A framework for higher education is important when designing and implementing higher education policies and programs. As well as when investigating and assessing higher education. It should point out the major discourse for how higher education ought to function in a country.
The United Nation Educational Science and Cultural Organization (UNESCO) has developed a World Declaration on Higher Education (WDHE) adopted by the World Conference on Higher Education (WCHE) in 1998. South Africa was among more than 180 countries who attended this conference. The document highlights priority actions to be taken at national level, at the level of systems and institutions, and at the international level for the renewal and revitalisation of higher education (UNESCO 1998).
Some of the most important points from this declaration are; first, that higher education shall be equally accessible to all people on the basis of merit, in accordance to Article 26.1 of the Universal Declaration of Human Rights (UDHR). As a consequence, no discrimination can be accepted in granting access to higher education on grounds of race, gender, language, religion or economic, cultural or social distinctions, or physical disabilities (UNESCO 1998).
Second, the "*core missions of higher education systems are to educate, to train, to undertake research and, in particular, to contribute to the sustainable development and improvement of society as a whole and should be preserved, reinforced and further expanded, namely to educate highly qualified graduates and responsible citizens and to provide opportunities for higher learning and for learning throughout life. Moreover, higher education has acquired an unprecedented role in present-day society, as a vital component of cultural, social, economic and political development and as a pillar of endogenous capacity-building, the consolidation of human rights, sustainable development, democracy and peace, in a context of justice*" (UNESCO 1998).
The second point of the WDHE addresses *development* and the role of higher education in maintaining the pursuit of sustainable development. It addresses both the issues of equity in education and the impact on social and economic development. It is these issues that will be the focus of this research.

3.3.1 Enrolment

Enrolment is here defined as the state of being enrolled in either of the primary, secondary, or higher education institutions subject to the research. Data on enrolment tell us something about the efforts made by the society to educate its people. Enrolment also gives a rough picture of education and provides an important, but often too rosy picture of the situation and several shortcomings of enrolment as indicator may be present. Szirmai (2005, p. 225-6) explains this by pointing at o*ver-reporting* the number of students enrolled as a matter of interest because financial subsidies often are based on the number of students enrolled. Education *quality* is also not reflected in the enrolment data. Students can be enrolled at any educational institution without attending any lecture or submitting any assignment. Furthermore, enrolment does not say whether the students enrolled *complete* their cycle of education.

3.3.2 Graduation

In order to get a more complete picture of the situation in higher situation it is important to supplement the enrolment data with graduation data. Szirmai (2005) argues that enrolment data does not state whether students enrolled in higher education institutions actually complete their cycle of education. This implies that a student enrolled for a particular course in a higher education institution may attend one semester, or nothing at all, but may still be recorded as a student taking higher education. Similarly, it implies that a student enrolled for a particular course may actually complete a master's degree, or even higher, but has the same status as a new student.
Graduation means that a student completes a degree at a higher education level, ranging from undergraduate level to Ph.D. level. In practice this could mean that the difference between enrolment and graduation is the difference between actually receiving higher education recognition in some form and not.
It is common on to divide the higher education into a hierarchical system consisting of three different types of institutions; the research institutions offering extensive programs up to Ph.D. levels, the institutions offering degrees mainly up to master's level, and the institutions with focus mainly on undergraduate educations. For South Africa particularly The Higher Education (HE) band incorporates a range of national diplomas and certificates up to and including postdoctoral degrees (DoE 2001).

In other words, drop-out will be accounted for when graduation is measured against development. It is natural to assume that opportunities for employment increase in accordance to the level of education a person holds. Similarly, the level of income is likely to correspond to a certain degree with the level of education (Mwabu and Shultz 2000).
Furthermore, Marmot (2004) claim that life expectancy can be seen in connection with the level of education, meaning that graduate students are more likely to live longer than drop-outs and "students" with just an enrolment record to show for.

3.4 Human Development Indicators

3.4.1 Indicators

Human development indicators are referred to as social indicators. Social indicators refer to social statistics that are components in a social system model. Such a model means conceptions of social processes. It can be collected and analysed at one or various points in time and accumulated into time-series. It can also be aggregated or disaggregated to levels appropriate to the specifications of the model. The informative value of the social statistics used as social indicators is important and derives from the empirical verification of the conceptualisation of the social process (Land 2001). Indicator models thereby have the potential of providing a dependable picture of the status of investments and policies in higher education and can be used to provide a valid basis for assessing ways to structurally and functionally improve education. The purpose of using 'economic growth/income', 'life expectancy', and 'unemployment' as indicators against 'higher education' is to explore the link between higher education and social welfare through some external benefits of higher education.

3.4.2 Economic growth /income

"A major constraint for accelerating and sustaining economic growth in South Africa is the shortage of skilled human resources" (Pillay 2006, p.1).
Statistical analysis, case studies, and common observation all point to the fundamental importance of higher education to development. Higher education is a fundamental and increasingly important determinant of a nation's position in the world economy (Todaro & Smith 2003; World Bank 2002). The reason is that higher education creates public goods such as new knowledge, a catalyst for rapid development, and by providing a safe space for the free and open discussion of the values that defines the character of a nation's development (World Bank 2000).

An expansion of educational opportunities seems to aggregate economic growth by creating a more productive labour and "modern" labour force with increased knowledge and skills. It also results in more widespread employment and increased income for school-related establishments and creates a class of educated leaders. It enhances entrepreneurial energy, quality of life, social mobility; and encourages political participation, strengthens civil society; and promotes democratic governance. Even if the social benefits of education (the payoff to society as a whole) fall short of the private benefits, the total return on investment in education implies an economic growth, according to Todaro & Smith (2003, p.384-385) World Bank (2000, p.92).

Bloom et al. (2005) explain the links between higher education, public and private benefits, and sustained income growth, as shown in Figure 3.1. Higher education promotes private benefits in the form of productivity, entrepreneurship, specialisation, and jobs. These benefits again generate economic growth and sustained income growth. The public benefits resulting from higher education take the form of research and development (R&D), foreign direct investment (FDI) good governance, safety, and general social development. These public benefits also contribute to economic growth and sustained income growth. The economic/income growth result in increased spending and more tax revenues which can be led back to higher education and improve it.

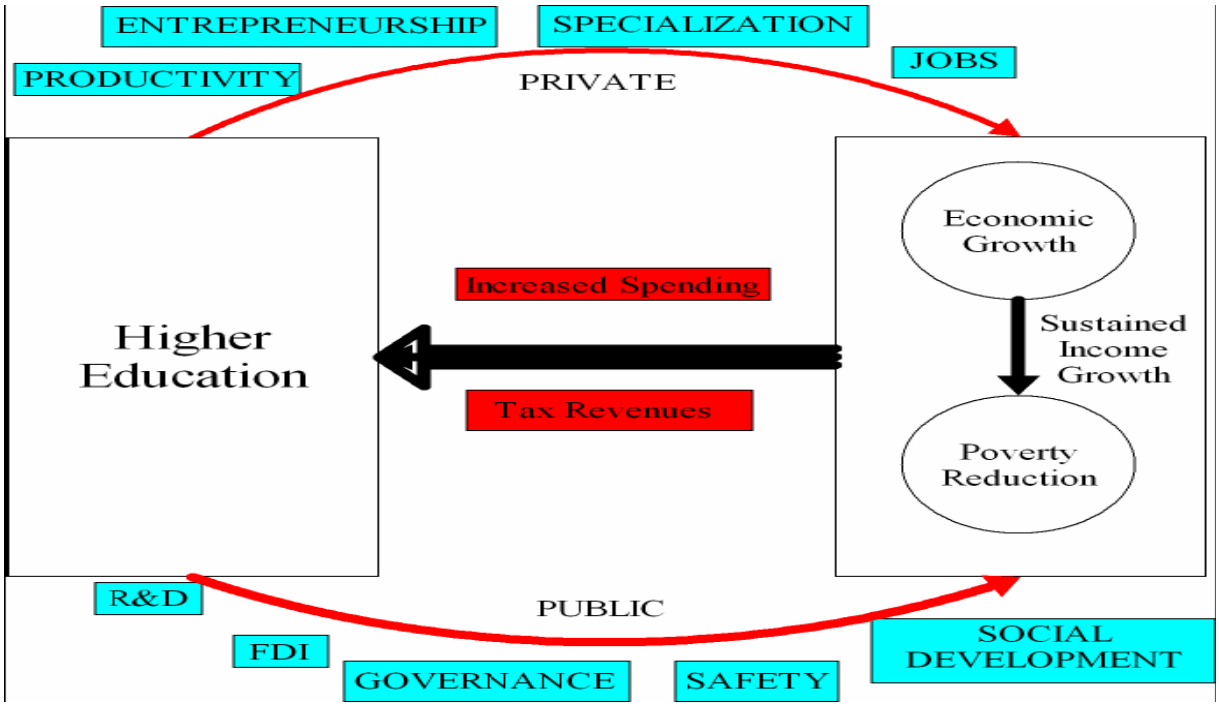


Figure 3.1: Links between higher education, public and private benefits, and sustained income growth (Source: Bloom et al., 2005, p.17)

An empirical study by Barro (1997) among more than 100 countries showed a significant positive effect on economic growth from the years of schooling at secondary and higher level. Raising the average level of schooling of the male labour force by one year increases the growth rate of GNP by as much as one percent. Schultz (1961) found that a significant proportion of the economic growth in the United States from 1900–1956 was unaccounted for by conventional economic means of measurement, and a significant proportion of personal income growth was accounted for by increased levels of education.

However, in order to sustain this economic growth the tax revenues and increased spending by employed people must be reinvested into higher education institutions and resources. Economic growth is a thereby a powerful determinant of poverty alleviation and offers improvements in people's lives. Higher education's contribution to growth therefore offers a better living standard for people at all levels of a society. Hence, notwithstanding the criticism for not addressing poverty reduction, higher education has the potential of contributing to poverty reduction.

The Organisation for Economic Co-operation and Development (OECD) defines a country with a knowledge-based economy as one where 'the production, diffusion and use of technology and information are keys to economic activity and sustainable growth' (OECD 1999, p.7). Investment in knowledge refers to the investment in areas that generate knowledge, such as research and development, software, education and basic science. It also refers to 'innovation' and the machinery, equipment and infrastructure used to support it. Industrialised countries have been heavily investing in knowledge, its creation, dissemination and adaptation to production. This is on par with their investment in machinery and equipment (8%), particularly since the mid 1990s (OECD 1999, p.9-21). The implications of these are particularly important for higher education institutions, which perform around 20% of all research and development activities for the OECD as a whole (OECD 1999, p.31).

The World Bank policy framework states that "tertiary education institutions support knowledge-driven economic growth strategies and poverty reduction by (a) training a qualified and adaptable labour force [...]; (b) generating new knowledge; and (c) building the capacity to access existing stores of global knowledge and to adapt that knowledge to local use. Tertiary education institutions are unique in their ability to integrate and create synergy among these three dimensions. The norms, values, attitudes, ethics, and knowledge that tertiary institutions can impart to students constitute the social capital necessary to construct healthy civil societies and socially cohesive cultures" (World Bank, 2002).
High performing economies in Asia, like South Korea and Taiwan, have been focusing on education for growth for half a century already. These countries first sought to achieve universal primary education, and then went on to expand high quality secondary education in line with the increasing industrialisation of their economies. The focus now appears to be on tertiary level education which will support the knowledge- based, hi-tech economy and help to increase their production of internationally competitive goods and services (Tilak 1994, p.55). The historically white institutions in South Africa have always tended to follow the contours of economy and society while the historically black institutions has been a by-product of the racially motivated politics and planning (Van Onselen 1991, p.1 cited in Cloete et al. 2004). The economic growth and income in South Africa has as a consequence been limited and racially skewed.
An important point in the relationship between higher education and economic growth is the ripple effect on health and duration of life. A study by Marmot (2002) suggests that the relationship between income and economic growth is affected by the level of education. He found that there was evidence that health affected income, but no major explanation on the link between income and health. However, when education was included in the model, the effect of income on life length was evident. The reasons for this may be because those with a higher level of education have higher incomes, or because education is a better indicator than income of some of the social factors, linked to social position, that are important for health and life length.

3.4.3 Life Expectancy

Life expectancy rate is the average number of years a child is expected to live from birth onwards (Szirmai 2005, p.147).
It represents the average life span of a newborn and is an indicator of the overall health of a country. Life expectancy can fall due to problems like famine, war, disease and poor health. Improvements in health and welfare increase the life expectancy rate. The higher the life expectancy rate, the better shape a country is in (Rosenberg 2006). It is therefore an important variable to evaluate in order to determine the level of development in South Africa. The state of people's health and their life expectancy rate are connected to each other. The life expectancy rate from birth is a frequently utilised and analysed component of demographic data for developing and developed countries.

The interdependence between health and education is an important reason why both factors have so decisive impact on a country's development. Better health is likely to raise the return on investment in education because health is an important factor in school attendance and school performance. An early death increase the average cost of education per worker, with healthy people being more able to productively use education at any point in life (Todaro & Smith 2003). On the other hand, more education is likely to raise the return on investment in

health because most health programs are dependent on skills learned in school. This applies for people who should obtain knowledge about health and therefore need basic literacy education, as well as people who teach people about health issues and therefore require higher education on different levels. The link and interdependence between health and higher education can also be seen in Figure 3.1 under 'Social Development'.

Empirical studies show the importance of education as a determinant of mortality. A study from USA showed that among older black and white people, the level of education has a greater effect than race on total life expectancy and active life expectancy (Guralnik et al. 1993). A study from central and Eastern Europe clearly show how life expectancy increases with the level of education and is highest for the population group with the highest education (Shkolnikov et al. 2006).
The picture of education as a miracle formula for a longer life needs to be nuanced. The access to higher education can be a big factor in enjoying a healthy life, and Marmot (2004) shows that the level of education on even the highest level is connected to the life expectancy. The study showed that people with PhDs have longer life expectancy than people with a master's degree or professional education. But this effect could be just as much connected to the fact that the higher the levels of education, the further up the social hierarchical ladder you are. Higher education also leads to higher positions in the hierarchy, which enables people to exert more control over their lives and to participate more fully in society. An effect of this control and participation could be the opportunity for employment.

3.4.4 HIV/AIDS

It is difficult to discuss higher education or health in South Africa without discussing the HIV/AIDS issue. According to UNAIDS (2006) South Africa has one of the fastest growing HIV/AIDS epidemic in the world and it represents a massive pandemic. From a population of 47, 5 million people the following estimates are made regarding HIV/AIDS:

- Number of people living with HIV 5 500 000 [4 900 000 – 6 100 000]
- Adults aged 15 to 49 HIV prevalence rate18.8 [16.8 – 20.7] %
- Adults aged 15 and up living with HIV 5 300 000 [4 800 000 – 5 800 000]
- Women aged 15 and up living with HIV 3 100 000 [2 800 000 – 3 400 000]
- Deaths due to AIDS 320 000 [270 000 – 380 000]

Generalised epidemics:

- Children aged 0 to 14 living with HIV 240 000 [93 000 – 500 000]
- Orphans aged 0 to 17 due to AIDS 1 200 000 [970 000 – 1 400 000]

(Source: UNAIDS 2006a).

To overcome this epidemic problem HIV/AIDS awareness has been heavily implemented within the educational system in South Africa through several programmes and activities (DoE 2001). Higher levels of education are associated with safer sexual behaviours and delayed sexual debut, but school attendance also provides students the benefits of school-based sexuality education and HIV prevention programming (UNAIDS 2006b). However, this requires that the young people are able to attend education on higher levels and not need to be at home and nurse for sick family members. AIDS also has a negative impact both on the supply of teachers and on the capacity of children to continue in school (Piot el al. 2001, p.971).

Because AIDS affects primarily young adults and in many cases initially spreads more extensively in the more mobile, wealthier and better educated parts of populations, its effects are felt across all social and economic sectors. It is only when HIV becomes entrenched that it reproduces patterns of wider social vulnerability. Hence the positive association between higher educational attainment and likelihood of HIV infection reverses as the epidemic matures to a persistent association between HIV and lower educational levels (Vandemoortele & Delamonica 2000). The wider consequences of young people becoming sick and lacking the capacity to attain higher levels of education could, according to the International Labour Organization (ILO) (2005), mean a lack of workers and hence a lack of jobs and employment in the long term.

3.4.5 Employment

Employment is regular paid employment for others, or self-employment performing work for profit (Allen & Thomas 2000, p.100). The employer conceives of a productive activity, generally with the intention of creating financial revenues, and the employee contributes labour to the enterprise, usually in return for payment. Employment statistics do not describe the picture adequately as the informal sector, including petty trading, unregistered self-employment, casual and irregular wage work etc., is excluded in these statistics. Neither are major parts of the agricultural work and the relationships between different supplementing types of work in households (Allen & Thomas 2000, p.109).

Despite statistical weaknesses, employment and the employment rates are generally considered important indicators on the state of a society and economy. Unemployment tends to be inversely correlated to education. Almost without exception, quantitative studies assessing contributions to growth have assigned an important role to investment in human capital (Becker 1993, p.12). Moleke (2005, p.1) states that higher education in South Africa has over the years provided society with highly skilled workers and thereby played an important role in the overall development of the country, in respect of the economy in particular.
The fourth point in the WDHE addresses the importance and need for job-relevance in higher education in order to correlate what society expects of higher education institutions and what they actually do. For this reason higher education institutions- and systems should base their long-term orientations on societal aims and needs, including the respect of cultures and environment protection. This is further emphasised by the reinforced relations with the world of work and increasingly knowledge-based economy. Developing entrepreneurial skills and initiatives should be emphasised and become major concerns in higher education anywhere to secure employment. Special attention should be paid to higher education's role of service to society (UNESCO 1998).

When determining the relationship between higher education and employment there are at least four indicators which should be taken into account; first, the differences between occupational sectors and the distinction between traditional graduate occupations, the lower-level positions, as well as the blurred or distinct borderlines, second, distinct cultures and in various disciplines and occupations as regards values and perceptions of what is desirable and adequate, third, value changes for students and graduates when it comes to employment, work, its relationship to education, and desire for jobs, and fourth, an active shaping of the job by graduates which emphasises utilisation of knowledge that thus may change the job itself (Teichler & Kehm, 1995:197).

The links between higher education, job opportunities, and also economic growth are also shown in Figure 3.1. The effects of higher education are expressed in several job-related aspects; such as productivity, entrepreneurship, and specialisation. Common for all these aspects is that they are generating jobs. A study by Valletta & Hodges (2005) shows the long lasting effect of educational attainment on the unemployment rate. Moleke (2005) confirm that those who manage to obtain a higher education qualification have a better chance in the labour market. This positive correlation between the years of education and higher earnings is substantiated by numerous studies.

3.5 Gender Equity and Equality

An important distinction needs to be drawn between equity and equality in this research. While 'equality' will emphasise on equal treatment of people, 'equity' will emphasise more on fairness in the process and outcome.
Gender issues in general and gender-in-development issues in particular have been high on the agenda in the development discourse in later years. The most recent recognition of women's importance in development is the Nobel Peace Prize 2006 awarded to Professor Muhammad Yunus of Grameen Bank in Bangladesh. As founder of this micro credit-scheme he saw the important role women play in sustainable development.
The World Economic Forum recognises that the persistent gap that exists between women and men in terms of the access to resources and opportunities is both a societal and economic challenge. This gap does not only undermine the quality of life of one half of the world's population but also poses a significant risk to the long-term growth and well-being of nations. Countries that do not capitalize on the full potential of one half of their human resources may compromise their competitive potential (World Economic Forum, 2006). The Department for International Development (DFID) (2006) further emphasises the importance of higher education in promoting gender equality and empowering girls and women within a sustainable development context.

The World Bank claims that investing in the development of women's educating probably is the best investment one can do when it comes to development. Among the most important benefits include; reducing women's fertility rates, lowering infant and child mortality rates, lowering maternal mortality rates, protecting against HIV/AIDS infection, Increasing women's labour force participation rates and earnings, and creating intergenerational education benefits (World Bank 2006c). UNESCO also addresses this issue but more in relation to higher education in their WDHE. According to UNESCO (1998) measures must be taken or reinforced in order to ensure the participation of women in higher education. Further efforts are required to eliminate all gender stereotyping in higher education and thereby focus more on equity. To overcome obstacles and to enhance the access of women to higher education remains and should remain an urgent priority in the renewal process of systems and institutions.

3.6 Population Group Equity and Equality

From a historical perspective, it is not self-evident that equity and equality between different population groups within a society are prevailing. In a number of countries, such as the United States, Great Britain, and South Africa, certain population groups have been suppressed in the society and in the educational system. The suppression and lack of social equity have been

addressed in these countries as a part of the countries' democratic development, with South Africa as the most recent example.
Social equity can not be attained in the absence of strong, sustained growth. The interdependence between growth and equity show that it is necessary to develop these two elements simultaneously rather than sequentially (ECLAC 1992). In South Africa this development must be advanced within a democratic framework and as part of the consolidation of a fledgling post-apartheid democracy.

In order to maintain sustainable growth and development for all people as outlined above, all people need to have equal access and opportunities to both enrol and graduate from higher education. Similar to the strong emphasis on gender issues and higher education, there should be a strong emphasis on population group equity, equality and links to higher education.
A persistent gap between population groups in terms of their access to resources and opportunities in higher education is both a societal and economic challenge. This gap does not only undermine the quality of life for the respective population group but also poses a significant risk to the long-term growth and well-being of nations. Countries that do not capitalise on the full potential of their population may compromise their competitive potential. In South Africa approximately 90 percentage of the total population is non-white and the apartheid regime's suppression of this majority population implied a lot of unutilised potential. E.g. the lack of access to higher education for 90 percent of the population would imply an equivalent lack in the factors included in Figure 3.1. Consequently is and should this be an important issue for increasing general quality of life and competitive potential.

3.7 The Policy Effects

McMahon (2001) has made an attempt to estimate the social benefits of education in some selected countries. The estimates are made by means of strategic policy simulations that generate time paths using data specific to the respective country through the year 2035. This estimation is done for three different scenarios; first, on the basis of a continuation of past policies implemented, second, on the basis of a political change in form of a 2 percentage increase in investment in public education as a per cent of GNP (economic policy), and third, on the basis of a 20 percentage increase in enrolment rates (education policy).
The Sub-Saharan Africa cases (Kenya, Tanzania, and Congo) are the most adequate comparison for South Africa. Common for all the three countries is that both the estimated policy impacts on economic growth and equity, and the non-market impacts on economic development for scenario 2 and 3 are positive for most of the aspects measured compared to just a continuation of already implemented policies. I.e. some of the most interesting observations are how scenario 2 outdo the two other scenarios by far when it comes to increase in GNP per capita, how scenario 3 leads to the most substantial decrease in income inequality, how any of the suggested changes lead to a reduction in both rural and urban poverty, and how much the life expectancy rates are expected to rise with implementation of either scenario 2 or 3. It is also interesting to note that besides the direct effects there are also indirect effects influencing the total effects of the policy changes. The indirect effects set in later and to a lesser degree as percentage of total effect, or the direct effects, but still they make a substantial effect on several of the different aspects. An exemplification of this phenomenon is the South African Bantu Education Act of 1953. This act stated that black South Africans should be put in separate educational institutions and facilitated by the Ministry of Native Affairs instead of the Ministry of Education. It also removed state subsidies from the mission-run African education institution with the result that almost all of

these institutions had to close down. The Bantu Education Act were followed by the Extension of University Education Act in 1959 which prohibited black students at university level to attend white institutions and established separate black institutions. This should ensure the idealised apartheid future in South Africa. The policies had tremendous effect on the society and educated a whole generation of black South Africans to understand their 'place' within the society, with no rights, privileges, or opportunities. The effects were in fact so strong that the black South Africans saw that they were being brainwashed and held no benefits in the apartheid system. The policy backfired on its intention and caused massive uprisings and 'Black Consciousness' which in the end resulted in the end of apartheid (Clark & Worger 2004). The policy exemplify that policies not always work as intended. The policies launched in South Africa in order to even out the inequalities in higher education are numerous and should result in more equality between the racial groups. The outcome of this research reveal to what extent these equality policies have worked as intended.

3.8 The Framework

This literature review has shown how higher education and human development indicators are closely related within a sustainable development context. The inclusion of measures such as employment, life expectancy, and income linked to higher education implies that both the public and private spheres are covered. The state of higher education, with emphasis on equality and equity, seems to influence the human development indicators. Different policies are launched over the years aimed at enhance growth together with equity and equality. Dependent on the results in the relationship between higher education, unemployment, income growth, and life expectancy in the aftermath of the policies, new policies are launched.
Based on Bloom et al. (2005) and the literature reviewed the figure below comprises the framework in which the research will be conducted.

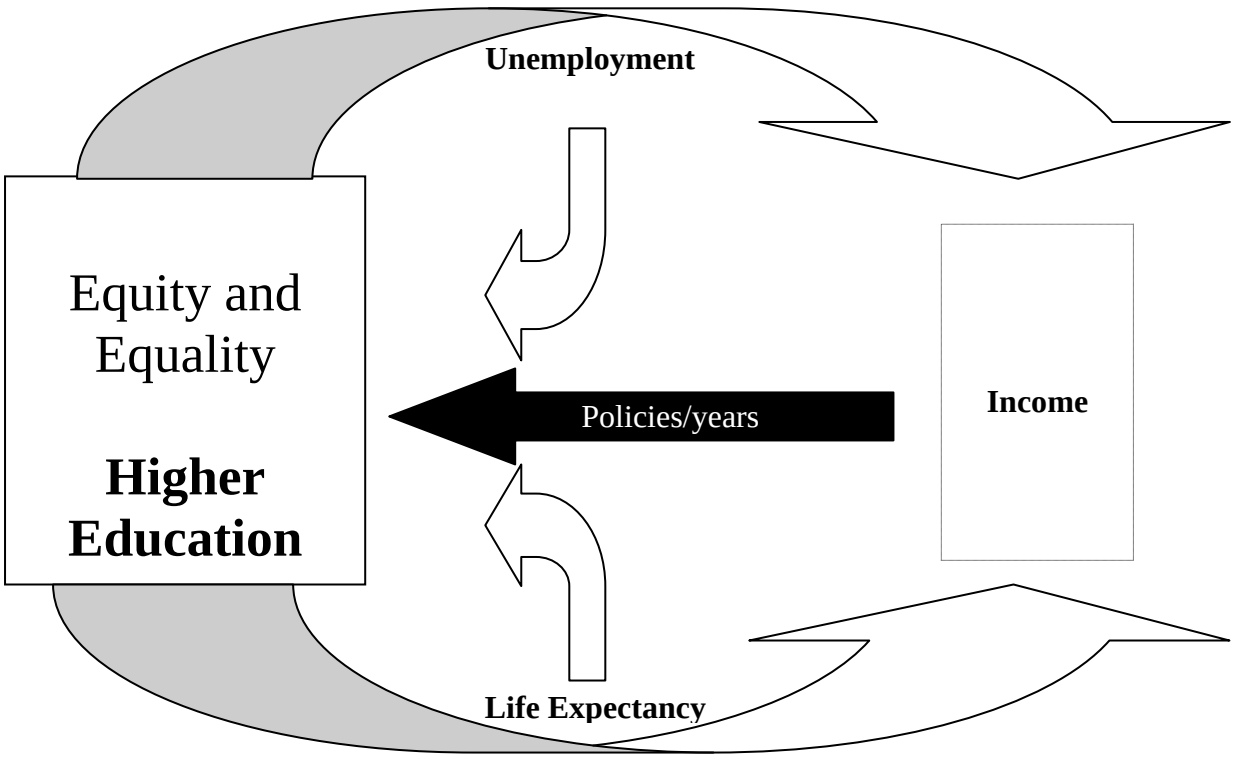


Figure 3.2: Theoretical framework

Chapter 4
Background and context

"As a consequence of the victories we have registered during our first ten years of freedom, we have laid a firm foundation for the new advances we must and will make during the next decade"

Thabo Mbeki

4.1 Description of the study area

Figure 4.1: Map of South Africa, political. (Source: nationsonline.org)

The Republic of South Africa is located at the southern tip of the Africa and is a vast country of 1,219,912 square kilometres divided into nine provinces and with a 2,798 kilometre

coastline. For comparison purposes, this is four times the size of Norway, but with one ninth of the length of coastline. The main natural resources consist of minerals such as gold, diamonds, and platinum which are also among the main export commodities in the country. South Africa is considered a middle-income country with one of the 10 largest stock exchanges in the world and a GDP per capita (ppp) of approximately $13,000.

Table 4.1: Population group composition in South Africa

Population group	Male		Female		Total	
	Number	% of total population	Number	% of total population	Number	% of total population
African	18 558 500	79,6	19 104 400	79,4	37 662 900	79,5
Coloured	2 060 000	8,8	2 138 800	8,9	4 198 800	8,9
Indian/Asian	570 200	2,4	593 700	2,5	1 163 900	2,5
White	2 138 900	9,2	2 226 400	9,3	4 365 300	9,2
Total	**23 327 600**	**100**	**24 063 300**	**100**	**47 390 900**	**100**

The total population is approximately 47, 4 million people which are divided into four main ethnic groups; African (79.5%), White (9.2%), Coloured (8.9%), and Indian/Asian (2.5%) (SSA 2006b). The overall literacy rate is approximately 86% and there are *eleven* official languages (CIA 2007).
The present chief of state of South Africa is President Thabo Mbeki of the African National Congress (ANC) and is seated in the administrative capital of Pretoria. The legislative capital of the country is however Cape Town and the judicial capital is Bloemfontein. The new constitution was certified in 1996 and went into effect in 1997.
According to the South African Government Information (2004), South Africa has a bicameral parliament with the ninety members of the National Council of Provinces (the upper house) and the four hundred members of the National Assembly (the lower house). Members of the lower house are elected on a population basis by proportional representation. Half of the members are elected from national lists and half are elected from provincial lists. Ten members are elected to represent each province in the National Council of Provinces, regardless of the population of the province. Elections for both chambers are held every five years. The government is formed in the lower house, and the leader of the majority party in the National Assembly is the President. Current South African politics are dominated by the ANC, which received 69.7% of the vote during the last 2004 general election. The main challenger to the ANC's rule is the Democratic Alliance party (DA), which received 12.4% of the vote in the 2004.

South Africa is ranked as number 121 in the United Nations Development Program (UNDP)'s Human Development Index (HDI) ranking of 2006 (UNDP 2006). The "scores" on three of the underlying indexes ranks; GDP per capita as number 55, education as number 66, and literacy rate as number 76 while the fourth underlying index, life expectancy, ranks as low as number 156 out of the 177 countries included in the HDI.

4.1.1 Higher Education in South Africa

The National Qualifications Framework (NQF) recognises three general bands of education in South Africa: General Education and Training (GET) from grade 0 through to grade 9, Further Education and Training (FET) from grade 10 through to grade 12, and Higher

Education and Training which includes all levels from a certificate to a doctor's degree. Figure 4.2 provides a schematic presentation of the NQF.
Under the South African Schools Act of 1996, GET is compulsory for all South Africans from age 7 (grade 1) to age 15, or the completion of grade 9. GET also includes Adult Basic Education and Training (DoE 2001).
A number of South Africa's universities are world-class academic institutions at the cutting edge of research in certain spheres. Although subsidised by the state, the universities are autonomous, reporting to their own councils rather than government.
According to the Council on Higher Education (CHE) (n.d.), an independent statutory body with the responsibility to advise the Minister of Education on all matters related to higher education policy issues and quality assurance, the higher education sector is vibrant and presently includes more than a million students enrolled in the country's 22 state-funded tertiary institutions. The institutions are divided into 11 universities, five universities of technology (technikons), and six comprehensive institutions. Higher education is also offered at hundreds of private institutions, which are registered with the Department of Education to confer specific degrees and diplomas.

BAND	SCHOOL GRADES	NQF LEVEL	QUALIFICATIONS
HIGHER		8	Doctor's degree
		7	Master's degree
			Honours degree
			Postgraduate diploma
		6	General first degree
			Professional first degree postgraduate
			Bachelor's degree
		5	First diploma
			Higher certificate
			Certificate
FURTHER	12	4	Diplomas
	11	3	Certificates
	10	2	
GENERAL	9	1	Grade 9 / Adult Basic Education and Training level 4
	8		
	7		
	6		
	5		
	4		
	3		
	2		
	1		
	R		

Figure 4.2: NQF structure

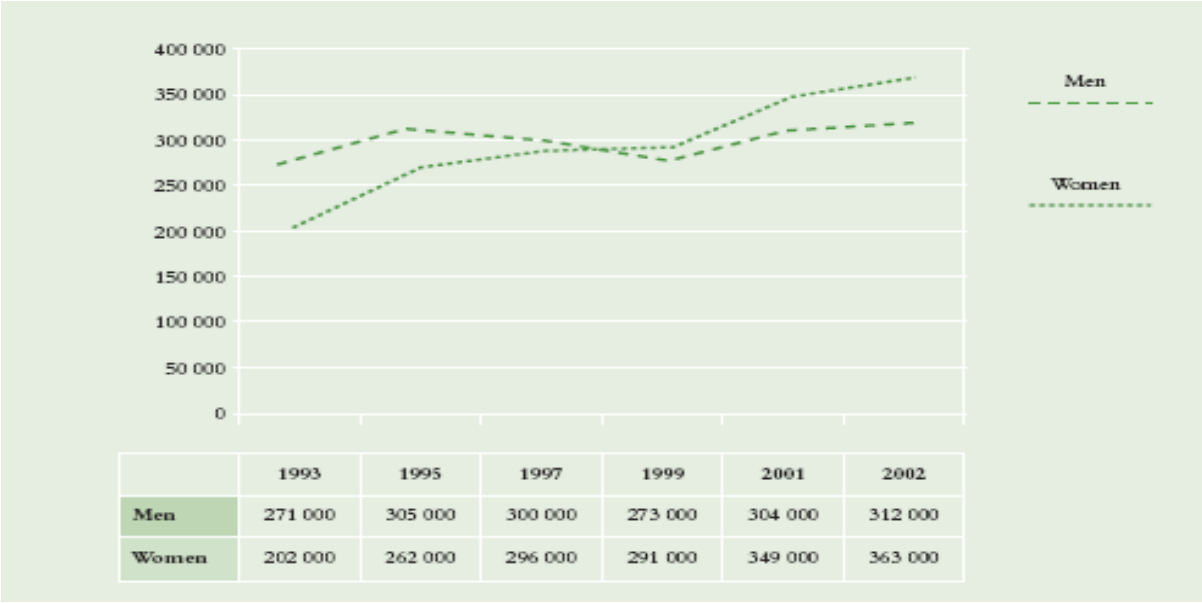
Higher education and its development in South Africa are clearly marked by centuries of colonialism and decades of apartheid regime (refer chapter 2). A result of this historical context is that three types of universities can be historically identified: English, Afrikaans, and Black African universities. This segregation is a threat to integrated higher education and its role in developing a post apartheid society.
This threat is a three-folded problem. The threat of this historically segregated structure lies in the categorisation of institutions of higher learning in South Africa and includes the following: First, under South Africa's new constitution, a person has an unqualified right to basic education, and the government's main area of commitment has been to ease the access to higher education institution for "previously disadvantaged people"; the non-white population groups who were denied access to higher education institutions. Higher education in the country is presently producing too many graduate programs of low quality and relevance, and generating too little new knowledge and direct development support. Second, this means that the fundamental effectiveness of the institutions is also in question.
Third, because many teachers in higher education institutions are preoccupied with the low motivational levels of students, the research capacities of many universities in South Africa have subsequently declined. These interrelated weaknesses have resulted in South African tertiary institutions changing their mission statements over the first couple of years to be more consistent with the changes that are taking place in the country. The government has tried to erase the hierarchical boundaries existing among the tertiary institutions with the main

problem now changing from racial boundaries to rural/urban boundaries (Fiske & Ladd 2004, pp. 10-13; Witbooi 1997; Johwa 2007). The results of the colonial and apartheid policies and the consequences of the abolishment are seen in many respects. Figure 4.3 show some of the consequences characteristic for the period.

	1993	1995	1997	1999	2001	2002
African	191 000	287 000	345 500	332 000	395 000	404 000
Coloured	28 000	33 000	32 000	31 000	35 000	39 000
Indian	30 000	37 000	39 000	40 000	44 000	49 000
White	223 000	214 000	183 000	163 000	177 000	182 000

Figure 4.3: Composition of headcount enrolments from 1993-2002. (Source: CHE 2004, ch.4)

Figure 4.3 shows the substantial increase in the number and proportion of African (black) students compared to the development of the number and proportion of white students since 1993. While some development countries struggle to convince students of the value of higher education, South African graduates realise the value and importance of higher education, but appear to make less informed decisions on their choice of study. The type and quality of the higher education chosen is even more important than just holding some higher education qualifications (Moleke 2005).
Figure 4.4 additionally shows the changes in the gender profile of higher education also changed dramatically in the first post-apartheid years. While men constituted the majority of the students prior to the end of apartheid, the women took more and more over to become the majority.



	1993	1995	1997	1999	2001	2002
Men	271 000	305 000	300 000	273 000	304 000	312 000
Women	202 000	262 000	296 000	291 000	349 000	363 000

Figure 4.4: Enrolments by gender 1993-2002. (Source: CHE 2004, ch.4)

4.1.2 Employment in South Africa

The key indicators for employment in South Africa per 2006 estimates can be seen in table 4.2.

Table 4.2: Key figures for the labour force in South Africa (Source: SSA 2006a).

Levels	Thousand
Employed[1]	12 451
Unemployed (official definition) [2]	4 275
Labour force [3] = a + b	16 726
Not in the labour force* [4]	13 126
Population of working age [5] = c + d	29 852
Discouraged work-seekers [6]	3 683

Rates (percentages)	Percentages
Unemployment rate [7] = b / c x 100	25,6
Labour force participation rate [8] = c / e x 100	56,0
Labour absorption rate[9] = a / e * 100	41,7

Notes to Table 4.2:

1. *Employed* (12 451 000): Persons aged 15–65 who did any work or who did not work but had a job or business in the seven days prior to the survey interview.
2. *Unemployed* (official definition) (4 275 000): Persons aged 15–65 who did not have a job or business in the seven days prior to the survey interview but had looked for work

or taken steps to start a business in the four weeks prior to the interview and were able to take up work within two weeks of the interview

3. *Labour force* (16 726 000): The sum of employed and unemployed persons.
4. *Not in the labour force* (not economically active) (13 126 000): Persons who are not available for work. These include scholars and students, full-time homemakers, those who are retired, and those who are unavailable or unwilling to work.
5. *Population of working age* (29 852 000): All persons living in South Africa aged 15–65 inclusive at the time of the survey.
6. *Discouraged work-seekers* (3 683 000): Unemployed persons who are available to work but who say that they are not actively looking for work.
7. *Unemployment rate* (25,6%): The number of unemployed persons expressed as a percentage of the labour force.
8. *Labour force participation rate* (56,0%): The number of persons in the labour force expressed as a percentage of the population aged 15–65.
9. *Labour absorption rate*(41,7%): The percentage of the population of working age who were employed
(Source: SSA 2006a)

Table 4.3: Labour force according to sector (Source: SSA 2006a).

Agriculture	1 318
Mining and quarrying	399
Manufacturing	1 726
Utilities	103
Construction	864
Wholesale and retail trade	2 996
Transport	555
Financial intermediation	1 194
Community and personal services	2 183
Private households*	1 087
Unspecified/Other	28
Total **	**12 451**

Table 4.3 shows the distribution of the employed labour force on the different sectors of the South African economy for 2006. Wholesale and retail trade is by far the biggest sector in terms of labour (SSA 2006a). The relationship and distribution between formal and informal sector can be seen in table 4.4 below (SSA 2006a). While formal sector is the largest sector in South Africa the informal sector make up a substantial portion in the economy. Agriculture is excluded in the informal sector due to the extreme seasonal variation of the industry. Even with agriculture excluded the informal sector still engages over 2 million workers.

Table 4.4: Formal versus informal sector (Source: SSA 2006a)

Formal excluding agric	8 059
Informal excluding agric	2 190
Domestic work	850
Unspecified sector	41
Agriculture	1 311
Total employment	**12 451**

The colonial and apartheid history of South Africa has also left its mark on the employment situation in the country. As can be seen in table 4.5 below, the differences in unemployment rate between the population groups are significant. The white population group has an approximate unemployment rate of 5% whereas the black population group faces an unemployment rate of more than 25% for males and more than 35% for

females. As mentioned previously, the informal sector workers are excluded which does distort the statistics to some extent. Nevertheless, the margin in both numbers and percentage between the population groups are large, with the female unemployment rate being high regardless of the population group.

Table 4.5: Unemployment rate for male and female (Source: SSA 2006a).

	Male	Female
Black African	25,8	36,2
Coloured	18,3	19,6
Indian/Asian	11,8	10,2
White	3,6	6,2
Average	**21,6**	**30,3**

Moleke (2005) states that the occupational segregation and inequalities in the labour market in South Africa are a result of two phenomena – discrimination and acquired human capital. This is mainly due to repercussions from the apartheid era where labour market policies deliberately restricted black South Africans to skilled jobs, certain sectors, and certain occupational categories, and thereby any significant career opportunities.

Despite considerable progress in redressing this situation, the inequities still exist. Moleke (2005) explains this continued inequity by blaming the interventions for having focus on the demand-side sources of differences in economic outcome (p.3). As a consequence, non-white South Africans tend to study in "traditional" fields in which the economic and labour market outcome is poorer, e.g. humanities, arts, etc. The pressure in these fields then increases and it becomes harder to get a good job within this field. The result is that only 47% of graduates in humanities and arts find employment immediately while 65% of graduates in economic and management sciences do.

Moleke (2005) additionally found that 60% of graduates secured employment immediately, with a 70% rate for white South Africans and 52% - 58% for non-white South Africans. So, despite the relatively high unemployment rate in the general population, the unemployment rate for people with higher education is relatively low.

The choice of higher education institution in the apartheid repercussions also has an effect on the employment situation in South Africa. Graduates from historically white universities are more easily absorbed into the labour market while graduates from historically black universities need longer time. A perceived or real difference in the quality of the different institutions may be an explanation to this phenomenon (Moleke 2005, pp.8-13).

This is reflected in figure 4.5 which indicates in what sector of employment people from different population group end up in.

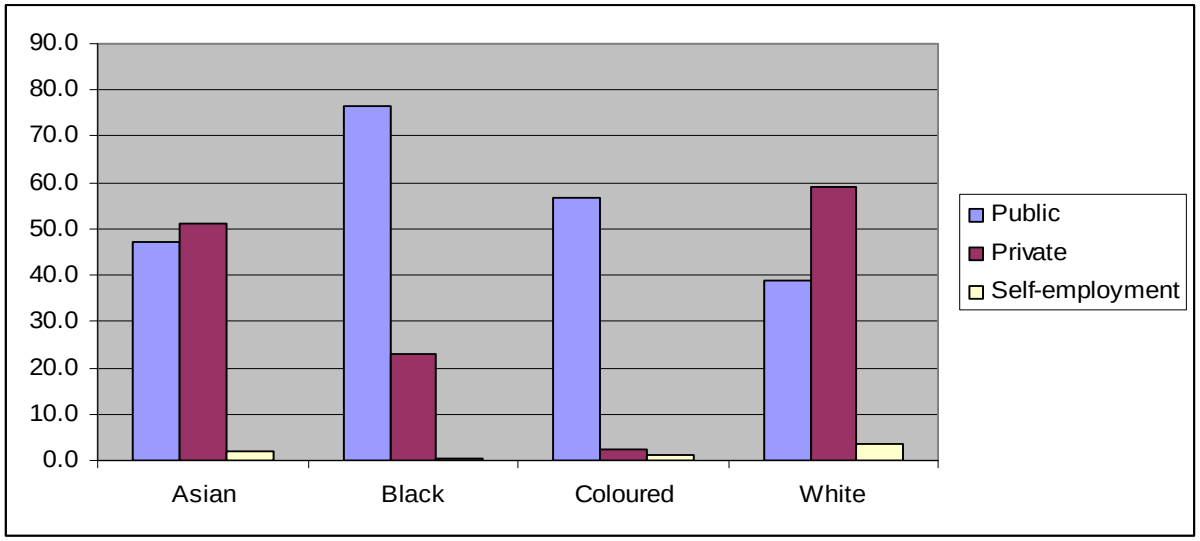


Figure 4.5: Sector of employment for the different population groups (Source: Moleke 2005).

This study shows that race continues to play a role when it comes to employment in South Africa. The majority of the Black and Coloured populations end up in the public sector while the Whites mainly end up in private establishments. The public discrimination of the non-white population groups' access to employment in public sector during the apartheid period, and the need to even out these differences may explain large parts of the differences in employment distribution on sectors. The Asian (Indian) populations have approximately a fifty-fifty distribution between public and private sector employment. In general, very few are self-employed.

4.1.3 Income in South Africa

Level of income is often used as a measurement for wealth and poverty, e.g. the $1 per day poverty line. During the apartheid regime the inter-racial income gap was large and this represented a challenge for the new government. Measures such as affirmative action policies, employment equity policies and legislations have been taken in this regard to narrow this gap (Woolard & Woolard 2006). Rising black per capita incomes over the past three decades have narrowed the inter-racial income gap, although increasing inequality within the black population seems to have prevented a significant decline in aggregate inequality and poverty. Analysis reveals that it is unlikely that rising intra-racial inequality has been sufficiently large to increase the proportion of the population living in poverty, given the upward trend in per capita incomes. At least by money-metric measures, poverty appears to have been relatively stable in terms of the poverty headcount and using a poverty line of R3 000 per capita per year. The number in poverty has increased only because of a growing population (Van der Berg & Louw 2004).
Table 4.4 shows the average income per month in the nine provinces for white and non-white males and females. The gap between white and non-white is substantial. Also the inter-racial differences among white males and females are remarkable. Provincial differences are also noticeable with Gauteng standing out from the rest with higher average income for all population groups.

Table 4.4: Average income per month (in ZAR) (Source: SSA 2001).

	Non-white male	White male	Non-white female	White female
Eastern Cape	2333	10823	2042	5712
Free State	1733	10519	1302	5832
Gauteng	3090	16057	2550	9322
KwaZulu-Natal	2744	13877	1966	7321
Limpopo	2199	10918	1664	6094
Mpumalanga	1935	11573	1392	5988
Northern Cape	1986	10714	1474	5335
North West	2069	10609	1757	5589
Western Cape	2646	13894	2035	7204

A study carried out by Mwabu and Shultz (2000) found that the wage rates of white South Africans was approximately five times as large as those for black South Africans. Almost 50% of this huge difference appeared to be due to differences in years of education. While among white men and women in the labour force 35% of the men and 20% of the women had higher education, only 2% - 3% of the black South Africans had higher education. However, the wage returns for additional education are nearly twice as large for the black South Africans compared to white South Africans. The figures from CHE (2004) showed a dramatic increase in the number of non-white students from 1993 to 2002 taking higher education. By the abolishment of the apartheid and the numerous policies launched in order to diminish the racial barriers in both the education sector and the labour market it would be likely that the gap would be narrowed dramatically. The figures from the 2001 census however show that this has not been the case this far.

4.1.4 Life Expectancy in South Africa

Table 4.5 shows the average age for white and non-white South African males and females and the overall HIV prevalence for the different provinces. There is a clear distinction between the white population and the non-white population. The differences on a provincial level are more or less ten years for both males and females.

Table 4.5: Average age and HIV prevalence for each province 2001 (Source: SSA 2001; HSRC 2005).

	Non-white female	White female	Non-white male	White male	HIV prevalence %
Eastern Cape	27.1	39.3	23.5	36.5	8.9
Free State	27.3	37.4	25.5	34.9	12.6
Gauteng	27.6	35.9	27.3	34.0	10.8
KwaZulu-Natal	26.3	39.1	23.3	36.8	16.5
Limpopo	26.0	35.3	21.9	33.8	8.0
Mpumalanga	25.4	34.0	23.8	32.7	15.2
Northern Cape	27.6	37.7	26.2	35.2	5.4
North West	27.1	35.8	26.2	33.9	10.9
Western Cape	27.2	38.9	26.1	36.2	1.9

The explanation for these large differences in average age is complex and involves a lot of different historical and present aspects. All the social repercussions from the apartheid era are

still making an impact on people's life and upholding a social distinction between the population groups.
When taking into account the HIV prevalence for the different population group presented in figure 4.6 some of the explanation is provided. 13.3% prevalence rate among the black South African population is high compared to the 0.6% prevalence rate among the white South Africans. This fact has an effect on the average life length.

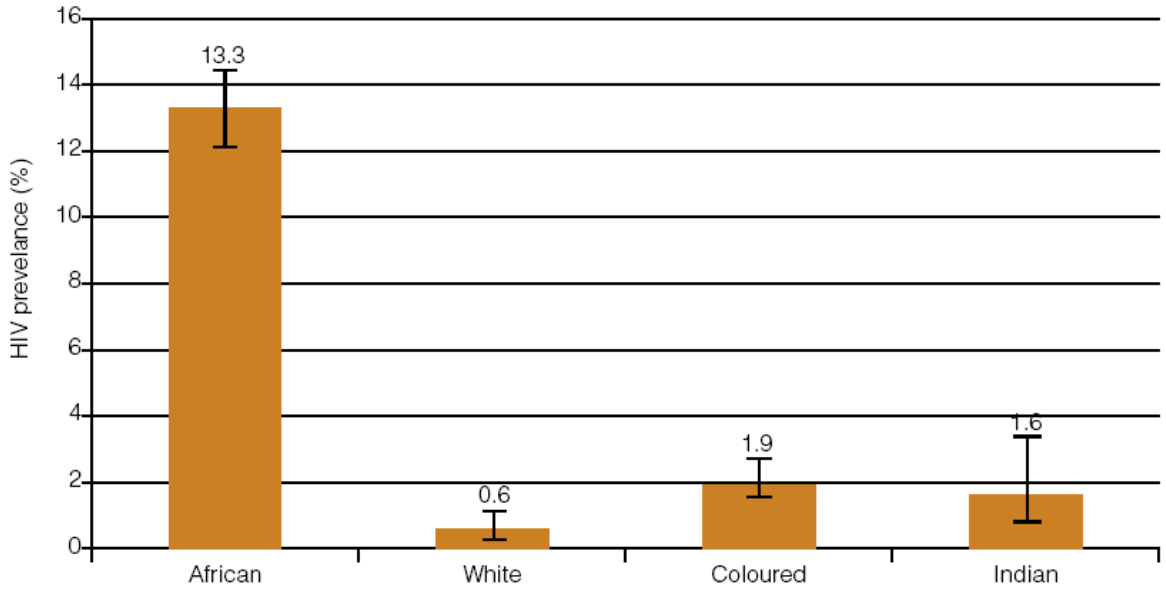


Figure 4.6: HIV prevalence for different population groups in South Africa (Source: HSRC 2005).

The total South African population has shown a rapid growth over the last century, from 5 million people in 1905 to more than 47 million in 2006. The population is expected to reach between 50 and 70 million in 2020, depending on the AIDS impact, the fertility rates and migration. It appears that AIDS and declining fertility rates will have a negative impact on the population growth rate and the life expectancy over the next decades (Van Aardt & Van Tonder 1999).

4.2 Provincial level

South Africa is divided into nine provinces. The provinces vary a lot in terms of population and economic activity. Table 4.6 shows some of the key demographical and economical facts for each of the provinces.

Table 4.6: Size, population, gross regional product, and share of total South African GDP in 2001 (Source: SSA 2001).

Province	Size in sq. km.	Population (2006)	Gross regional product in billion Rand(2003)	Share of total SA GDP
Eastern Cape	168,966	6,894,300	88.0	8.1%
Free State	129,825	2,958,800	69.0	5.5%
Gauteng	16,548	9,526,200	413.6	33.3%
KwaZulu-Natal	94,361	9,924,000	206.8	16.7%
Limpopo	125,755	5,365,400	81.3	6.7%
Mpumalanga	76,495	3,252,500	87.5	6.8%
Northern Cape	372,889	910,500	29.7	2.4%
North West	106,512	3,858,200	81.4	6.3%
Western Cape	129,462	4,745,500	181.0	14.5%

Each province has its own provincial government, with legislative power vested in a provincial legislature and executive power vested in a provincial premier and exercised together with the other members of the provincial executive council (South African Government Information 2004).
Gauteng stands out as the locomotive in the South African economy. With only 1.4% of the total land area Gauteng hosts more than 20% of the population and generates one third of the total GDP in South Africa. In contrast, Northern Cape has more than 30% of the land area but hosts only 2.3% of the population and generates 2.4% of the total GDP.

Table 4.7: Poverty in South African provinces (Source: HSRC 2004).

Province	No. of poor persons (million)	% of population in poverty	Poverty gap (Rand billion)	Share of poverty gap
Eastern Cape	4.6	72.0%	14.8	18.2%
Free State	1.8	68.0%	5.9	7.2%
Gauteng	3.7	42.0%	12.1	14.9%
Zulu-Natal	5.7	61.0%	18.3	22.5%
Limpopo	4.1	77.0%	11.5	14.1%
Mpumalanga	1.8	57.0%	7.1	8.7%
North West	1.9	52.0%	6.1	7.5%
Northern Cape	0.5	61.0%	1.5	1.8%
Western Cape	1.4	32.0%	4.1	5.0%
South Africa	25.5	58.0%	81.4	99.9%

The poverty figures based on Bureau of Market Research (BMR)'s Minimum Living Level poverty line show that only Gauteng and Western Cape contain less than 50% of people below the poverty line. The information in figures 4.4, 4.6, and 4.7 show that there is a

general trend which follows this line. Gauteng (Sotho word for “Place of Gold”) with Pretoria: City of Tshwane and Johannesburg within its borders generates the most wealth through mining, technology, finance and manufacturing as the main activities. Gauteng has the highest literacy rate and more than 90% of the population lives in metropolitan areas, and it also houses the headquarters of the major banks, the Reserve Bank, the Johannesburg Stock Exchange and large industrial areas.
According to SSA (2001) the population group composition in Gauteng was Blacks ca 74%, Coloured ca 4%, Indian ca 3%, and Whites ca 19%. This is almost twice the proportion of Whites compared to the country as a whole.

4.3 Municipality level

South Africa has 262 municipalities, including metropolitan municipalities. The population in the municipalities varies from zero in a few municipalities up to more than 3.2 million people in Johannesburg Metropolitan municipality. The average population is approximately 170,000 people (SSA 2001).
Metropolitan municipalities, also known as Unicities, have exclusive municipal executive and legislative authority in their areas. There are six of these: Cape Town, Durban, East Rand, Johannesburg, Pretoria: City of Tshwane, and Port Elizabeth. They have a choice of two types of executive systems: the mayoral executive system, and the collective executive committee. Members of municipal councils are elected every four years on the basis of the relevant portion of the national common voters' roll. The South African Local Government Association (SALGA) has a mandate to transform local government and to represent its interests at provincial and national level (South African Government Information 2004).

4.4 Sub-place level

The smallest spatial unit of information used by SSA is the Enumerator Area (EA) that is populated during a census. South Africa consists of 80 787 EAs per 2001 census. The EAs are grouped into sub places that are defined as “places” like a suburb, informal areas and tribal villages (Brits n.d., p.1). South Africa consists of 21, 219 sub-places. Pretoria: City of Tshwane Metropolitan Municipality extends itself partly in Gauteng province and in North West province and consists of 378 sub-places in total. The population in the sub-places varies from zero up to 82,000 people with an average population of approximately 5300 people per sub-place. Around 60 of these sub-places are without any white population while only a very few are without any non-white population (SSA 2001).

4.5 Summary

The Republic of South Africa is a vast country with large natural and human resources. It is a country with a unique and interesting history which still finds itself in a transition- and democratisation process. The composition and complexity of the South African people, the historical background, and some of the resulting challenges are reflected in the information in this chapter.
The findings and significance of this research can only be assessed on the backdrop of the contextual background of the study areas presented in this chapter. The structure of the

country and the composition of people in the different spheres of the society are important for understanding the outcome of the analysis. To know the structure of the educational system, the demographical structure, and the racial and gender composition in the societal spheres in question; higher education, income, age, unemployment are decisive elements when conducting the research as well as when assessing the outcome. The background information can provide explanatory elements and highlight contrasts which may be revealed in the analysis. The fact that the province of Gauteng seems to be the leading province in many respects according to the information provided in this chapter is an example which will be indeed useful when assessing the explorations of this research.

Chapter 5
Research and methodology

"Statistics may not be the most sexy, but it is definitely one of the most important areas in the fight against poverty"

Eric Bensel, leader of OECD's statistics program PARIS 21.

5.1 Introduction

This chapter elaborates on the methodology used in this master thesis. Reasons are provided for the choice of methodology, and explanation is given regarding how the methodology is applied. I will also examine the possible limitations regarding the methodology. The chapter consists of three sections; the first section is about the preparation stage of the data collection and field work. The second section concerns the actual data collection and fieldwork. The third section deals with the data analysis and illustrates and explains the framework used for the analysis.

This research is based on a quantitative approach to understanding the social reality. Independent of the method used for research in the social sciences, a certain level of bias and subjectivity is inevitable. My understanding of the society and the situation in question will affect the conduct of the research, and the method is likely to affect the way I understand the society and the situation. This is important to bear in mind both when conducting the research and when reading and assessing the results.

5.2 Preparations for the fieldwork

In order to verify the assembled data and make the data collection more efficient, a fieldwork in the study area was both appropriate and necessary. The additional experience that could be gained as a student and researcher called for my physical presence in South Africa. After visiting South Africa in connection with a face-to-face seminar together with most of my fellow students and a number of professors and other members of staff South Africa presented itself as a very interesting country in many aspects. The rather long and dramatic history involving people from many places around the world puts South Africa in a very unique position and made it an interesting case for investigation. The relative peaceful transition from apartheid regime to democratic government stands out in contrast to all the violent revolutions around the world through history. South Africa is still a young democracy though and holds a lot of potential for improvement and it was anticipated that the actual atmosphere and attitudes in the ongoing transition process can only be sensed by actually being there.

5.2.1 Selection of the Study Area

The decision to conduct this master thesis in South Africa was based on several factors in addition to the social scientific reasons mentioned above and in section 1.2. Expanding the personal experience to include South Africa was one factor. Agder University College (AUC)'s recently established cooperation with the University of Pretoria (UP) implied that formal contacts with the staff at UP would be available and most likely willing to cooperate with any student from AUC wanting to conduct their thesis research in South Africa and

around Pretoria: City of Tshwane in particular. Pretoria: City of Tshwane being the twin town with Arendal, Norway, where the AUC has also got a campus was another reason for expecting goodwill and cooperation from government level as well if necessary. The face-to-face seminar at UP in June 2006 for most of the students participating in this Master of Science Program in Development Management strengthened my preference for South Africa as study area.

Mr. Gregory Breetzke, lecturer both at UP and at this Master of Science Program in Development Management run under the AUC and United Nations University (UNU) auspices was a natural contact person on behalf of UP. There was great willingness to assist students who chose to conduct their field work in South Africa with base in and around Tshwane. Help in arranging some transportation, accommodation, contacts, and technical support on the chosen research topic. Concurrent interests for quantitative research methods added even more relevance in continuing the already established professional relationship.

5.2.2 The Fieldwork

The fieldwork took place from the 28th of January 2007 until the 3rd of March 2007. The late start of the fieldwork was due to the summer holiday in South Africa taking place in January and as a result, the closure of most tertiary education institutions during the turn of the year. After settling in at the accommodation and getting organised I was enlisted as visitor student at UP and offered an office place. Contact with the Department of Statistics at UP was soon established together with contacts at the South African Statistics (SSA). SSA is the national statistics agency in South Africa and is mandated to collect and process data and produce official statistics. SSA's mission is to provide a relevant, timely, reliable and accurate statistics to inform users on the dynamics in the economy and society through the application of internationally acclaimed practices (Barnes et al. 2007).

Being able to do an on-site fieldwork represented an advantage with respect to establishing contacts and getting information. Access to UP library and exclusively South African electronic sources enabled access to literature that else would otherwise have been inaccessible. Face-to-face communication with supervisor and the average South African who could provide tips and information on how to proceed in order to get the information was also an advantage. Considering the time factor involved and the data needed, the fieldwork was inevitable and an asset to the research. The issue of approaching and proceeding through the right channels according to South African culture in order to obtain the data was clearly eased by being on site. Formal and informal information sources useful for the progress and development of the research were revealed in forums not accessible online.

5.3 Research Design

5.3.1 Research Strategy

In order to see the overall development and a comparison of education and human development within South Africa I chose to have a quantitative approach to the research problem. A quantitative research is characterised by a deductive approach to the relationship between the theoretical framework and the actual research, as opposed to a more inductive generation of theory in qualitative methods (Bryman 2004). My premise was that South

Africa has developed several aspects of their education system after the end-of-apartheid, together with an understanding that education in a prerequisite for growth which I would like to assess with this research.
Furthermore, a quantitative research approach posses a positivistic epistemological orientation which emphasis the application of methods of natural sciences to the study of social reality (Bryman 2004). This also fits with the research problem this research undertakes. In order to measure the dimensions for all the spatial levels and get a holistic picture of the situation this research needs to view the social realities from an external point of view and maintain an objective ontological orientation rather than try to find and construct a social reality. A quantitative research approach is therefore preferable. This implies to systematically obtain comparable information from a number of similar objects, and then process this information as numbers able to be analysed (Hellevik 1999, p.13).

5.3.2 Research model

The predictive model and variables are shown schematically in the following research model:

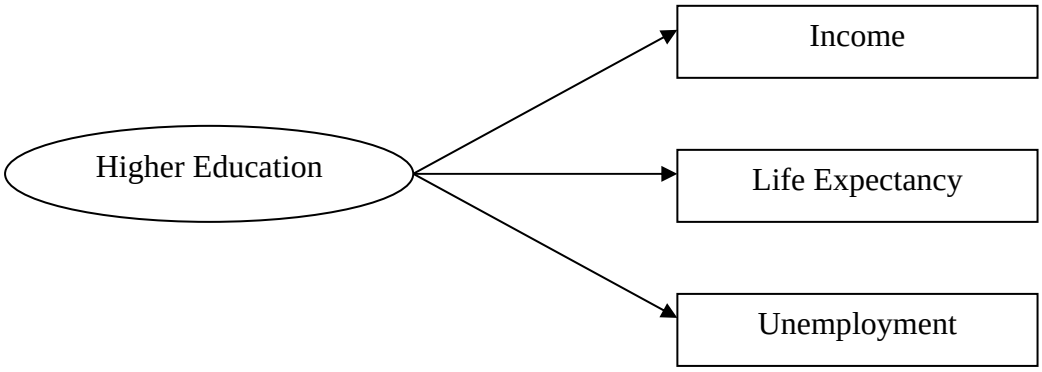


Figure 5.1: Research model

5.3.3 Defining the variables

The following definitions of the different variables are applicable for the implementation of this research.

Independent variable:

Higher Education – is defined as the ratio of the total population having achieved education above the level of Grade 12. For the purpose of the correlation analysis three additional levels of education are included in order to highlight the role of higher education. The three levels are: 'No schooling', 'General Education and Training' (GET), and 'Further Education and Training' (FET).

- No schooling is defined as the ratio of the total population having not received any kind of formal education at any level.
- GET is defined as the ratio of the total population having only received any basic education up to grade nine.

- FET is defined as the ratio of the total population having achieved the educational level ten through twelve.

Dependent variables:

Income – is defined as the ratio of the total population belonging to each of the twelve different intervals of amount of South African Rand (ZAR) received per month in salary. The twelve intervals range from 'no income' up to 204801 ZAR and above per month.

Life Expectancy – is defined as the ratio of the total population belonging to each of the eighteen age intervals. The age intervals range from 0-4 years up to 85 years and above.

Unemployment – is defined as the ratio of the economically active people (unemployed + employed) who are unemployed.

5.3.4 Design

When deciding on the framework for the collection and analysis of data the focus of the research is an important consideration. How would the evaluation of the findings be performed? There are mainly five dominating research designs prevailing in today's literature on social science; experimental designs, cross-sectional design, case study designs, comparative designs, and longitudinal designs (Bryman 2004, p.27). The design for this research will have a lot of the characteristics of a cross-sectional design. A cross-sectional design "entails the collection of data on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables, which are then examined to detect patterns of association" (Bryman 2004, p.41). 'More than one case' in this instance implies that there is a variation in respect of people, families, organizations, distinct areas etc. The sampling procedure therefore requires larger numbers in order to conduct this kind of material. 262 municipalities and 378 sub-places are sufficient even if drop-outs occur. 9 provinces would be a too small sample for statistical analysis, but are included for curiosity and comparative reasons.

When it comes to 'a single point in time', cross-sectional research design involves the measurement of all variable(s) for all cases within a narrow time-span so that the measurements may be viewed as contemporaneous. The South African census of 2001 was conducted on the night between 9th and 10th October 2001. This is recognised as a single point in time.

'Quantitative or quantifiable data' are methods for having a systematic and standardized procedure for examining the variation between variables. This is important because it provides the research with some consistent benchmarks when analysing the data and getting a pattern.

'The patterns of association' in a cross-sectional design enable an interpretation of the relationship between the variables. Data are compared among and between places at one point in time to assess both inter-individual and intra-individual change. In my analysis it will be important to find the relationships between higher education and the human development indicators, according to racial group and gender from the year of the last census.

The structure of the cross-sectional design comprises the collection of data on a series of variables (Obs_1 Obs_2 Obs_3 Obs_4 ….Obs_n) on a single point in time, T_1. The boxes below show the cross-sectional design and how it relates to the variables for the 9 provinces, 262 municipalities and 378 sub-places respectively.

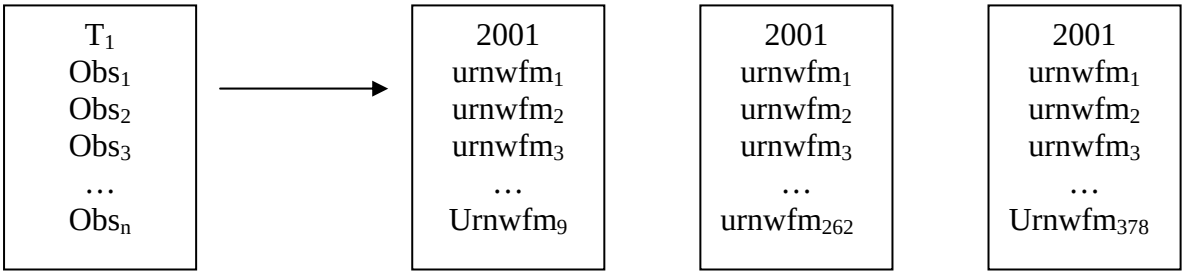


Figure 5.2: Cross-sectional exemplification

A data rectangle for a cross-sectional will be as shown in the box below, where the 'Cases' are the individual province, municipality or sub-place (exemplified), and the 'Observations' are the different variables (Bryman 2004, p.45):

	Obs_1	Obs_2	Obs_3	…	Obs_n
$Case_1$					
$Case_2$					
$Case_3$					
…					
$Case_n$					

	GET	FET	Unmpl.	….	Obs_n
Amandasig					
Chantelle					
Clarina					
…					
$Subplace_{378}$					

Figure 5.3: Cross-sectional table-examples for sub-places

5.3.5 Sampling

The sampling procedure for this cross-sectional research is rudimentary as a result of the use of secondary data in form of official census data. The 2001 census employed over 83 000 enumerators and over 17 000 supervisors and fieldwork co-ordinators to collect the required information on persons and households throughout South Africa. People living in households across the country, as well as those in hostels, hotels, hospitals and all other types of communal living quarters, and even the homeless, were all counted. The results of Census 2001 is based on the count done this night but are adjusted for undercount according to a post-enumeration survey carried out to verify the quality of the census (SSA 2003).

5.3.6 Data Collection

The intention of the research is to get a comparison of the development of education and the human development indicators at three different geographical levels in South Africa; 9 provinces, 262 municipalities and 379 sub-places in Tshwane municipality. Data on human development indicators will also be obtained from the census data. These are official and public datasets and although outdated, represent the most comprehensive socio-economic dataset available in the country. The Census 2001 is organised and carried out through SSA and much of the findings from the census are publicly available through their website

www.statssa.gov.za. The data are categorised on provincial-, district council-, and municipality levels for person statistics and household statistics. This implies that census data on smaller areas than municipality level is not publicly available through the website. Community Profile Databases copied to CDs need to be obtained in order to access data on smaller areas. This package is only available upon special request and permission from SSA at the cost of production. Through contacts at SSA and UP I was able to obtain these databases together with useful software to use with it. This enabled me to retrieve the census data needed for the sub-place analysis. The census data are valid sources of data and generally widely recognised as reliable and therefore indeed suitable for research purposes. The census data in South Africa have however received critique from researchers and described as 'problematic'. The large numbers of zero and missing income variables are brought up as particularly problematic (Bhorat & Kanbur 2006, p.2). Notwithstanding the critique, this research will use the census data due to the limited amount of resources available. The data for the case study on UP was collected through contacts at the administration and Department of Statistics at UP.

5.3.7 Unit of Analysis

The sample for this research is information obtained for the whole of South Africa at the provincial and municipality level while only the population in CTMM was obtained at the sub-place level. The CTMM is subordinated partly under the Gauteng province and partly under the North West province. Each municipality is divided into wards, which again are divided into main places. The main places are again divided into sub-places. In the case of CTMM there are 17 main places divided into 378 sub-places. The actual sample and unit of analysis that is the subject for the research is the 378 sub-places within the CTMM. Each of the sub-places has its own name to identify that one sub-place. In order to convert datasets to the selected unit of analysis and distinguish them to the correct sub-place they are linked through this sub-place name. A categorisation into gender (male and female), population group (white and non-white) is done prior to the analysis.

5.3.8 Method for Analysis

The data used for this study are statistics (census data) and other ancillary information collected from UP and therefore calls for a *secondary analysis.* A secondary analysis has the advantages of being cost saving and timesaving considering the big amount of data available for analysis. Because the raw data is already there, a secondary analysis leaves more time for the actual analysis. Secondary data are also considered to be high-quality data for several reasons. A rigorous and very representative sample usually characterise secondary and official statistics. The geographical spread is far beyond what could be possible for "the common researcher" without extensive resources. Another advantage is that these secondary data is likely to be generated by experienced people with tested and established structures and procedures (Bryman 2004, p.202). It seems likely that this is certainly the case for the census data in South Africa. However, some limitations exist for secondary analysis. Raw data not collected by the researcher leaves the researcher unfamiliar with the data and hence uncertain of the quality of the data. The complexity of the data is usually quite big and therefore difficult to handle when it comes to managing and applying analysing methods on them.

5.3.9 Tools for Generation and Presentation of Data

The main tools for generating and presenting data have been Microsoft's Excel and the Statistical Package for the Social Sciences (SPSS) computer software for Windows, together with the Super TABLE software provided by SSA. The raw data needed to be adapted and run through both Super TABLE and MS Excel in order to obtain the needed data on an appropriate format for use in SPSS. A sub-division into three different geographical areas, two genders, and two population groups make a total of twelve different datasets:

- Non-white females on sub-place level.
- Non-white males on sub-place level.
- White females on sub-place level.
- White males on sub-place level.
- Non-white females on municipality level.
- Non-white males on municipality level.
- White females on municipality level.
- White males on municipality level.
- Non-white females on province level.
- Non-white males on province level.
- White females on province level.
- White males on province level.

SPSS has been used for doing the analysis. The analytical method consists of both descriptive statistics and correlation analysis.

Descriptive statistics are methods used to derive indices from large amounts of raw data which make the datasets more manageable (Huck et al. 1974, p.19). The descriptive statistics generated through SPSS include a minimum and a maximum value recorded for each of the variables. It also includes the mean and the standard deviation for each of the variables. N = number of records. Mean (arithmetic) is the sum of all scores divided by the number of scores (records), often called average (Huck et al. 1974, p.23). The standard deviation is the square root of the variance. The variance is determined by calculating, through a computational formula, how much each scores deviates from the mean (Huck et al. 1974, p.27). In order to avoid too complex and crowded descriptive statistics outputs the variables in this research are grouped together to one variable per indicator.

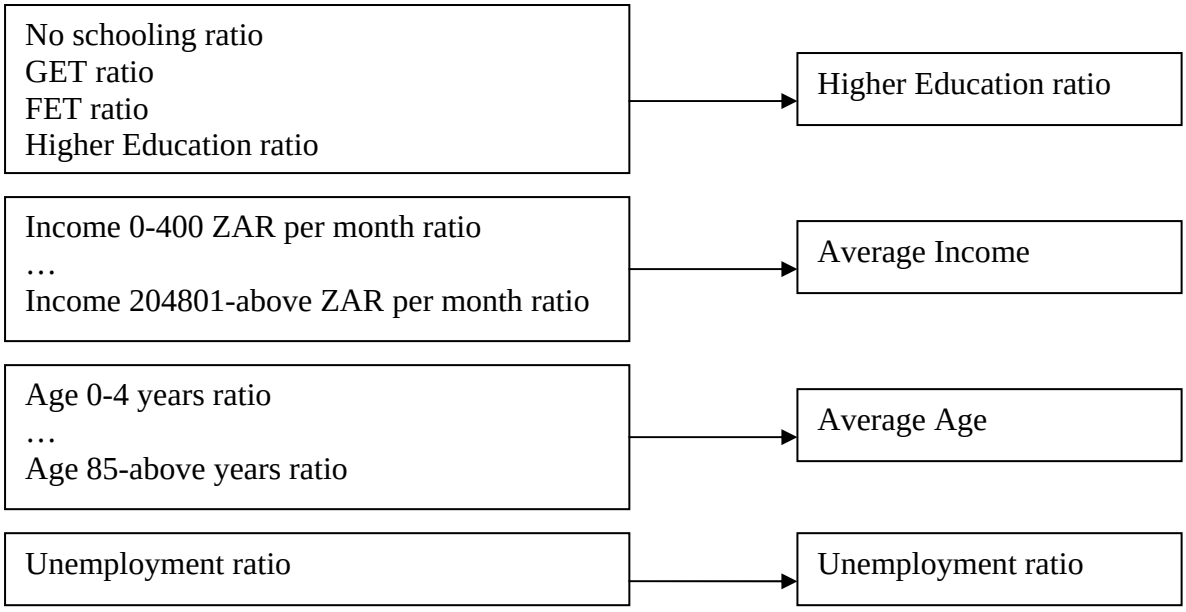


Figure 5.4: Variable groups for the respective indicator

Descriptive statistics do not however say anything about the relationship between the variables in question. To explore the relationship between variables bivariate analysis are needed. Correlation analysis is a bivariate analysis method used to describe the strength and direction of the linear relationship between two variables through a correlation coefficient (r) (Pallant 2005, p.121). The correlation coefficient takes on values from ÷1 to +1 and the correlations are consequently negative, positive, or zero (Huck et al. 1974, p.30). A positive correlation ($r>0$, $r<1$) reflects a direct relationship between the two variables analysed, i.e. a common trend. If $r=1$ the two variables vary in the exact same pattern and direction, and the correlation is perfect. A negative correlation ($r<0$, $r>÷1$) reflects an inverse relationship between the two variables, i.e. simultaneous trends in opposite directions. If $r=÷1$, what one variable increases, the other variable will decrease exactly the same. The closer the correlation coefficient is to 1 or ÷1 the stronger the correlation/relationship is and indicates that the more of the value of one variable can be determined by knowing the value of the other variable. If $r=0$ there is zero correlation between the two variables and no systematic relationship exists (Huck et al. 1974, p.31).

There are two correlation techniques which are most commonly used; the Pearson product-moment correlation coefficient and Spearman's rank order correlation (rho). While the Pearson correlation coefficient is a parametric technique, the Spearman's rho is a nonparametric technique. Parametric techniques test hypothesis based on the assumptions that the samples come from populations that are normally distributed. Nonparametric techniques are distribution-free and do not specify normality/homogeneity of the variance assumptions in the population (Huck et al. 1974, p.197). The raw census data used in this research cannot be assumed to have a normal and homogeneous distribution in the population where the sample is taken from. The scale of measurement for all the variables used in the correlation analysis' are ratio and therefore continuous. Spearman's rho will therefore be used for the correlation analysis in this research.

It is important to note that correlation analysis' have limitations that need to be considered when interpreting and analysing the results. Correlation does not explain the whole causal connection between the variables analysed, but only that there is a relationship between the

two. The possibility of a third variable influencing the two variables should be considered (Pallant, 2005, p.116).

After analysing the data through SPSS the outputs from the descriptive statistics and the correlation analysis are presented on tables and different diagrams. While SPSS generate useful tables for the descriptive statistics MS Excel is used for generating different types of charts to explain the outcome.

5.4 Research Ethics

Research ethics' refers to the moral principles guiding research, from its inception through to completion and publication of results and beyond (The Economic & Social Research Council (ESRC) n.d., p.7). This research is designed, reviewed and undertaken to ensure integrity and quality in line with common standards, i.e. ESRC's Research Ethics Framework. Everybody involved in this research in any way has been informed to the best of my abilities about the purpose, methods and intended possible uses of the research. Because of the nature of the research and the quantitative approach no personal information about anyone has been revealed or in any way used in this study. Those indirectly involved have participated in a voluntary way, free from any coercion and been fully informed about the purpose of the research through oral presentation and letter of intent prepared and signed by the head of this Master Program in Development Management at AUC. A confirmation letter from UP was also prepared. This is an independent research and any conflicts of interest or partiality which may have occurred are not done with malice aforethought.

Chapter 6
Findings and discussion with case study

6.1 Introduction

This chapter will present the outcome of the census data exploration and the discussion related to the findings for the four different indicators; higher education, age, income, and unemployment on the three different levels of spatial aggregation; province, municipality, and sub-place. Descriptive statistics and outcomes of correlation analysis will give a picture of the relationship between the different variables on population groups and gender. Each of the twelve statistics (three spatial levels statistics per indicator) and the nine correlation analysis transcripts (three analyses transcripts per spatial level) will be discussed consecutively and in the light of the contextual background. The discussion will be summarised and pinpointed in section 6.4. A case study taken from the University of Pretoria will then be used to highlight and contrast the results and the discussion. The limitations of the study will be discussed at the end of the chapter.

6.2 Descriptive statistics

Descriptive statistics are methods used to derive indices from large amounts of raw data which make the datasets more manageable (Huck et al. 1974, p.19).
These statistics will be presented for each of the four human development indicators; higher education, age, income, and unemployment. They will be sorted and discussed on province-, municipality- and sub-place-level in order to reveal any differences in the results according to geographical level.

6.2.1 Descriptive statistics on education

Table 6.1: Higher education statistics on provincial level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Higher Education rate for non-white (>20yrs) females	9	.030	.080	.05000	.014142
Higher Education rate for non-white (>20yrs) males	9	.030	.070	.04778	.013944
Higher Education rate for white (>20yrs) females	9	.190	.310	.24000	.042426
Higher Education rate for white (>20yrs) males	9	.220	.360	.28444	.050277
Valid N (listwise)	9				

Table 6.2: Higher education statistics on municipality level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Higher Education rate for non-white (>20yrs) females	258	.000	.400	.04340	.033400
Higher Education rate for non-white (>20yrs) males	259	.000	.450	.03961	.033187
Higher Education rate for white (>20yrs) females	257	.000	1.000	.26615	.115834
Higher Education rate for white (>20yrs) males	257	.000	1.000	.30362	.126333
Valid N (listwise)	256				

Table 6.3: Higher education statistics on sub-place level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Higher Education rate for non-white (>20yrs) females	363	.000	1.000	.15287	.160865
Higher Education rate for non-white (>20yrs) males	367	.000	1.000	.17779	.191423
Higher Education rate for white (>20yrs) females	261	.000	1.000	.33851	.235540
Higher Education rate for white (>20yrs) males	270	.000	1.000	.38811	.253018
Valid N (listwise)	244				

The differences in higher education between the white and the non-white population groups are remarkable according to these statistics. White males and females outperform the non-white males and females by large margins on the mean ratios. For males at the municipality level the difference in mean ratios of higher education is the most remarkable with almost eight times in favour of the white. The difference is also evident in the maximum value where non-white males and females record seven and eight percent on a provincial level while their white counterparts record 31 and 36 percent on the same geographical level.

An interesting observation is the difference in mean higher education ratios for the three different spatial levels. The mean higher education rates on the sub-place level for Pretoria: City of Tshwane Metropolitan Municipality (CTMM) is significantly higher than on the other two levels. The differences are most distinct for the non-white population group as the mean higher education rate on sub-place level is more than three times the rate on provincial level. Another important observation can be seen in the standard deviation among the white population groups in particular where the standard deviations vary between the different geographical levels, but are in general higher for the white population groups. An inter-racial difference among the white population groups is the implication of the deviations. The differences are especially evident at the sub-place level where the standard deviations reach 23 for females and 25 percent for males. These tables must be treated with some caution however as some of the sub-places contain low population counts when compared to others, nevertheless the statistical significance is well founded. The overall higher means on the sub-place level indicate that CTMM has come a step further than the country as a whole when it comes to both general and equal higher education ratios.

The difference in N on the sub-place level can be explained by the fact that some sub-places are very homogenous in terms of their racial breakdown.

6.2.2 Descriptive statistics on average income

Table 6.4: Average income (ZAR) per month statistics on provincial level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average Income (per month) for non-white females	9	1302.00	2550.00	1798.0000	394.47719
Average Income (per month) for non-white males	9	1733.00	3090.00	2303.8889	441.41490
Average Income (per month) for white females	9	5335.00	9322.00	6488.5556	1265.57577
Average Income (per month) for white males	9	10519.00	16057.00	12109.33	1999.45149
Valid N (listwise)	9				

Table 6.5: Average income (ZAR) per month statistics on municipality level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average Income (per month) for non-white females	258	148.00	3775.00	451.3566	281.52685
Average Income (per month) for non-white males	259	240.00	13050.00	840.8301	900.92388
Average Income (per month) for white females	256	.00	22733.00	3112.9805	2289.50341
Average Income (per month) for white males	256	.00	154200.00	9323.4023	11558.10853
Valid N (listwise)	255				

Table 6.6: Average income (ZAR) per month statistics on sub-place level for Pretoria: City of Tshwane Metropolitan Municipality

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average Income (per month) for non-white females	366	.00	25067.00	1990.1858	2825.37270
Average Income (per month) for non-white males	365	69.00	31607.00	3820.9699	4735.30975
Average Income (per month) for white females	258	.00	28800.00	5307.4767	4022.53165
Average Income (per month) for white males	265	.00	41303.00	10460.44	7740.25013
Valid N (listwise)	243				

The average incomes on the different spatial levels give some indication of the economic situation between the white and non-white population groups. At all levels of aggregation, the differences between the average incomes for white and non-white South Africans are substantial. This is most strongly reflected on the municipal level where the average incomes for the non-white population are ZAR 451 and ZAR 840 for females and males respectively, compared to average incomes of ZAR 3112 and ZAR 9323 for respectively white females and males. White females earn approximately seven times what non-white females do. And white males earn more than eleven times the average income of non-white males. Even if the ratios differ some depending on the spatial level the trend is uniform.

The remarkable higher mean average income on provincial level compared to municipality level indicates that a high number of municipalities have very low average income, with a minimum of ZAR 148 per month for non-white females. This is in stark contrast to the minimum average income for non-white females on provincial level, ZAR 1302.
However, on the sub-place level for CTMM differences are less. An approximate 2.7 time difference in mean average income exists between the white and non-white population which are considerably lower than the outcome on municipal level. This suggests that CTMM is overall better off when it comes to personal income than what is the case in the rural areas. This is in accordance with the fact that the Gauteng province, of which the CTMM is a part, is the economic hub of South Africa. Nevertheless, the mentioned 1993 study carried out by Mwabu and Shultz (2000) seems to still be of some relevance and thereby indicate that little countrywide progress has been made in respect of equalise the wage differences between the white and the non-white population.

The standard deviations on the different levels provide and indication of the large inter-racial differences that exist between the races. As the standard deviation increases the internal difference increases; higher scores deviate from the mean In terms of ZAR per month the differences are clearly largest among the white South Africans, except on the sub-place level where the standard deviation in average income for non-white males (ZAR 4735) exceeds the inter-racial differences for white females (ZAR 4022). This is another indication on the strong economic drive Gauteng and CTMM possess. The standard deviations as ratios of the mean average income are between 16 and 22 percent on provincial level, irrespective of racial group or gender. The ratios are approximately 75 percent for white males and females and as much as 141 and 124 percent for non-white females and males respectively on the sub-place level.

Hence is the strong economic position Gauteng and CTMM hold reflected in the remarkable inter-racial inequalities in terms of average income.

The differences in mean maximum incomes between males and females for both racial groups and between the two racial groups for all spatial levels are substantial. If you consider the fact that some of the municipalities and sub-places host a very small number of people from either one or both of the racial groups, the maximum records must be treated as one or a few records of "extreme" income which is enough for forming a skewed picture. Even if the findings are interesting, a suggestion for further research could be to replace the extreme scores with the mean in order to avoid extremities.

6.2.3 Descriptive statistics average age

Table 6.7: Average age statistics on provincial level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average Age for non-white females	9	25.40	27.60	26.8444	.76667
Average Age for non-white males	9	21.90	27.30	24.8667	1.79095
Average Age for white females	9	34.00	39.30	37.0444	1.88687
Average Age for white males	9	32.70	36.80	34.8889	1.40574
Valid N (listwise)	9				

Table 6.8: Average age statistics on municipality level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average Age for non-white females	259	16.02	54.00	26.8436	2.83347
Average Age for non-white males	259	18.14	60.00	24.9858	3.69576
Average Age for white females	258	.00	53.56	37.2988	6.10780
Average Age for white males	255	16.43	48.52	35.9395	4.75349
Valid N (listwise)	255				

Table 6.9: Average age statistics on sub-place level for CTMM

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Average Age for non-white females	368	12.33	84.00	30.3354	7.30995
Average Age for non-white males	368	12.33	76.00	29.2745	5.53905
Average Age for white females	264	.00	82.00	34.5141	9.27449
Average Age for white males	277	1.00	76.81	33.0758	8.06433
Valid N (listwise)	254				

The descriptive statistics for age provided above follow the same broad patterns as the average income for the different spatial levels. The mean average age for the non-white population groups is considerably lower than for the white population groups. The differences are especially evident at the provincial and municipal level with over ten years higher age on the white population groups. According to these statistics a white South African on average lives more than 40 percent longer than a black South African. At the sub-place level for CTMM the differences in mean average age are much less with an approximately four years and thirteen percent difference.

In accordance with Marmot (2002) who suggests that higher income plays an important role in facilitating better health and thereby a longer life, the relative high average incomes for the black population group in Gauteng and in the sub-places of CTMM are connected to the relative high average age mean in these descriptive statistics. According to World Health Organisation (WHO) (2007), there is however a number of explanatory factors connected to health and life length. Gauteng's strong economy compared to other provinces is only one of the factors which are likely to explain the higher means of average age in this spatial level.

On the other hand, the contention that a high number of municipalities have very low average income does not concur with the mean average age at a municipality level. Except from the higher mean average age on sub-place level, the mean average ages on province and municipality level are approximately the same. This supports Marmot's (2002) lack of major explanation on the link between income and health.

The standard deviations on the average ages increase as the spatial levels get finer. From between ca 0.8 for to 1.9 for on the provincial level it varies from 5.5 to 9.3 on the sub-place level. This follows the same trend as the average income; together with the strong economic position Gauteng and the CTMM hold. Remarkable inter-racial inequalities in terms of average age seem to follow the difference seen in the white population groups with a standard deviation of 9.3 on the sub-place level. The implication of this is over nine years in inter-racial differences in the white female population.

The HIV/AIDS prevalence in the South African population, which is distinctively higher among the non-white South Africans, will have a considerable impact on the average age in these descriptive statistics. A HIV/AIDS prevalence of 13.3 percent and more than 300,000 deaths due to HIV/AIDS (UNAIDS 2006a; HSRC 2005) could be seen as an explanatory factor for the differences between the non-white and the white South Africans.

6.2.4 Descriptive statistics unemployment rate

Table 6.10: Unemployment rate statistics on provincial level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Unemployment Rate for non-white (15-65yrs) females	9	.340	.620	.52778	.085408
Unemployment Rate for non-white (15-65yrs) males	9	.280	.560	.39333	.084261
Unemployment Rate for white (15-65yrs) females	9	.040	.090	.07333	.015000
Unemployment Rate for white (15-65yrs) males	9	.040	.070	.05667	.008660
Valid N (listwise)	9				

Table 6.11: Unemployment rate statistics on municipality level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Unemployment Rate for non-white (15-65yrs) females	262	.000	.870	.50221	.187802
Unemployment Rate for non-white (15-65yrs) males	262	.000	.810	.37305	.189091
Unemployment Rate for white (15-65yrs) females	262	.000	.500	.08592	.082924
Unemployment Rate for white (15-65yrs) males	262	.000	1.000	.05679	.076402
Valid N (listwise)	262				

Table 6.12: Unemployment rate statistics on sub-place level

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Unemployment Rate for non-white (15-65yrs) females	363	.000	1.000	.26309	.247918
Unemployment Rate for non-white (15-65yrs) males	365	.000	.680	.19649	.183211
Unemployment Rate for white (15-65yrs) females	244	.000	1.000	.07152	.142415
Unemployment Rate for white (15-65yrs) males	257	.000	1.000	.08218	.168135
Valid N (listwise)	233				

The descriptive statistics on unemployment rates across the different spatial levels follow the same patterns as average income and average age. The most obvious similarity is that the unemployment rate is remarkably lower for the white population group compared to the non-white population group. The mean unemployment rate for the white population is between 5.6 percent and 8.5 percent irrespective of spatial level.

For the non-white population it differs from 52.3 percent for females on the provincial level down to 19.6 percent for males on the sub-place level. The differences between males and females are also substantial across all spatial levels with considerably higher unemployment rates among females. However, the unemployment rates for the non-white population are almost halved on the sub-place level compared to the province and municipality level. The unemployment rates for the white population remain more or less the same on all the spatial levels, but with a slight increase among the white males on the sub-place level. Again it seems like Gauteng's economic power could play an important role on the unemployment rates in the CTMM as well.

Moleke (2005) showed that the majority of the non-white population ends up in the public sector for their first job. Pretoria being the administrative capital in South Africa implies that a lot of public jobs are generated as a result. This can be another explanation why the unemployment rates for the sub-places in CTMM are so much lower than what seems to be the trend for the country as a whole.

The standard deviations for the unemployment rates increase the finer the spatial level gets. Standard deviation of approximately 8.5 percent for the non-white population and one percent for the white population on the provincial level increase to approximately 18-25 percent for the non-white population and 14-17 percent for the white population on the sub-place level. This implies that the inter-municipal and inter-sub-place differences are quite large compared to the more overall provincial level.

The fact that some municipalities and several sub-places have very few inhabitants affect the maximum and minimum unemployment rates for both racial groups and genders and should therefore not be given much consideration. This also explains some of the large standard deviations on the municipality- and sub-place level when some of the records are zero and others show 100 percent unemployment. However, the minimum and maximum unemployment rates on the provincial level are of some interest. They build up under the common trend of a considerable worse situation for the non-white population in the job-market in South Africa.

6.3 Correlation analysis

The correlation analysis was carried out at three geographical levels (sub-place, municipality, province) using one independent variable-group (education), three different dependable variable-groups (income, age, unemployment), two genders (male and female), and two population groups (white and non-white). In total 36 separate correlation analyses were conducted.

These 36 correlation analysis outputs represent a vast amount of information. In order to clarify for the reader a subdivision was undertaken. The subdivision resulted in three outputs per spatial level:

1. Education and Income for both white and non-white males and females.
2. Education and Age for both white and non-white males and females.
3. Education and Unemployment for both white and non-white males and females.

The correlations are set to be significant at the 0.01 level. In order to simplify and get a better overview of the analysis the significant correlations were charted. The dependent variables are set at the x-axis while the correlation coefficients are set on the y-axis. The significant correlations with the different levels of schooling for genders and population groups comprise the lines in the diagram. The lines exemplify the level and sign (positive or negative) of the significant correlations and thereby show growth or decline in the relationship between the variables as the level of the dependent variable increases. However, only the significant correlations are included in the charts and incomplete lines indicate that there are no significant correlations for that particular pair of variables where it is incomplete. These charts are not appropriate for unemployment as there is only a variable representing unemployment. Unemployment and its correlation with education are presented later in a simple bar chart.
Full transcripts of the correlation analysis conducted are available from the author if desired, but they were too substantial to include in the text or as an appendix.

6.3.1 Sub-place

The correlation analysis for Education and the three human development indicators on the sub-place level for CTMM revealed some interesting results which, which are shown in the three charts below and discussed.

Education and Income
The outcome of the correlation analysis between the different levels of education and the levels of income is presented in the Figure 6.1 and Figure 6.2 below. Only significant correlations are included.

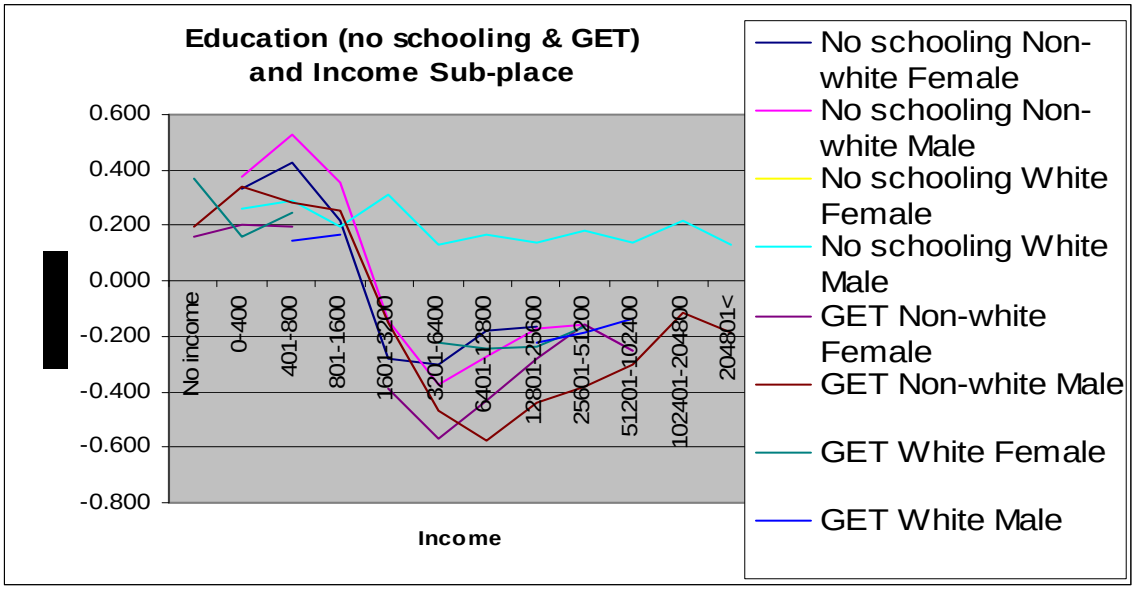


Figure 6.1: Significant correlations between no schooling- and GET-level of education and income on sub-place level

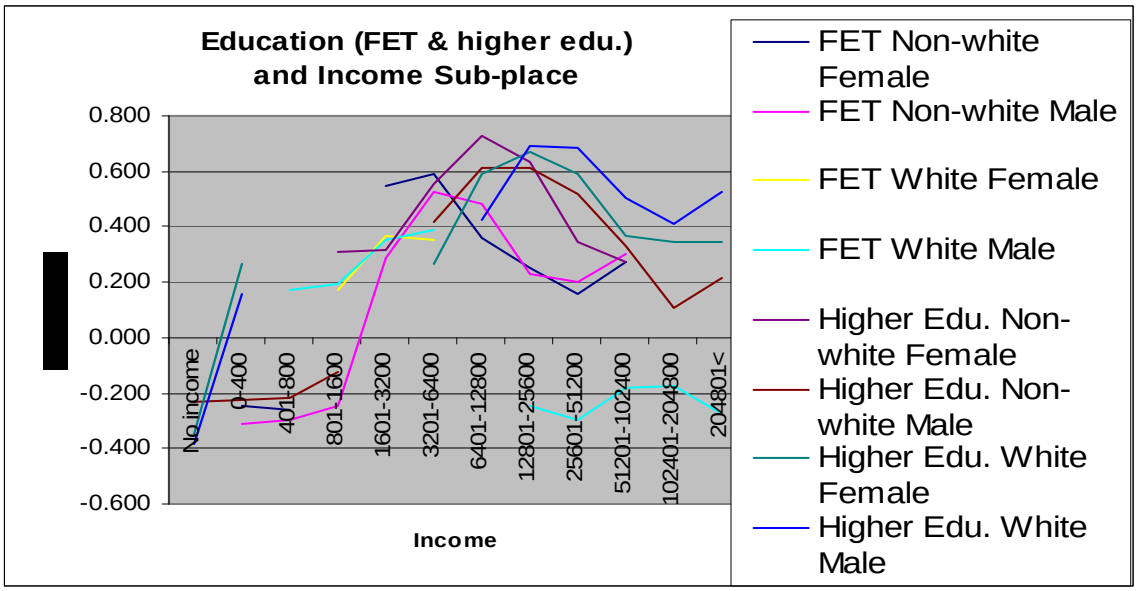


Figure 6.2: Significant correlations between no schooling- and GET-level of education and income on sub-place level

Figure 6.2 shows a strong, positive correlation between Higher Education and the upper half of the income scale. Similarly, there is a significant, negative correlation between Higher Education and the lowest levels of income for all groups. However, while this trend is also seen at the FET level of education for the non-white population groups, a negative correlation is seen between FET and the higher levels of income for the white male population groups. This indicates that the non-white population groups face higher levels of income if they achieve FET than the white populations do by achieving FET. Both for the white males and females there are positive correlations shown for FET and middle income levels. For the upper levels of income there are however, no correlations for the white females and negative correlations for the white males with regard to FET.

The GET level of education correlates negatively with the upper half of the income levels for all population groups. This indicates that high percentage of people in sub-places with GET as the achieved level of education relates negatively with high percentages with higher incomes. On the lower levels of income, the GET seems to have some weaker, positive correlations for all the population groups. The correlation between the ratios of people with no schooling and the levels of income is different from the white population groups to the non-white population groups. For the non-white males and females there are some positive correlations for the lowest levels of income before it turns into negative correlations with the higher levels of income. This indicate a trend where sub-places with higher ratios of people with no schooling at all have lower ratios of people belonging to the higher income groups. This is different from the white population where there are no or very weak, positive significant correlations between no schooling and any of the income levels. The fact that the white population groups traditionally obtained basic education and GET could explain the weak correlation.

Education and Age

The outcome of the correlation analysis between the different levels of education and the different age groups is presented in Figure 6.3 and Figure 6.4 below. Only significant correlations are included.

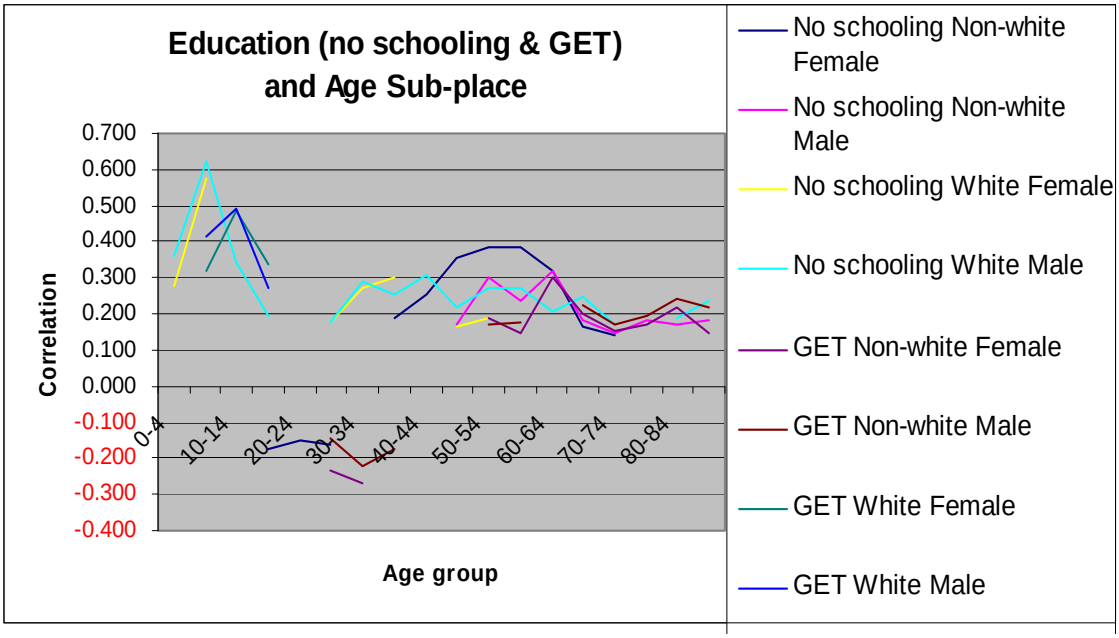


Figure 6.3: Significant correlations between no schooling- and GET-level of education and age on sub-place level

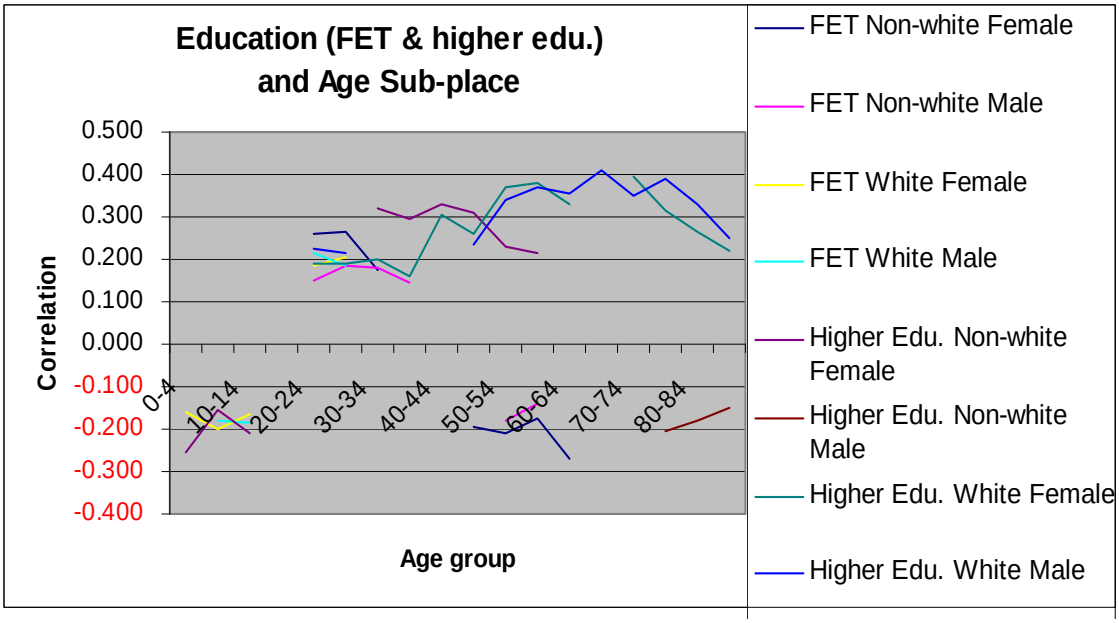


Figure 6.4: Significant correlations between no schooling- and GET-level of education and age on sub-place level

There are no clear, uniform trends existing across genders and racial groups when examining the relationship between education and age. There are however some similarities within each of the racial groups. Strong, positive correlations between no schooling and 0-9 years of age exist for both the white population groups while the non-white population groups show no or negative correlations between no schooling and the lower half of the age groups. The fact that children below six years of age not go to school in South Africa is an explanatory factor for this result. The differences are distinct and show a clear contrast between the white and the non-white population. Furthermore, no schooling is positively correlated with the *higher* age groups of the non-white population groups. The turn from no or negative correlations for the lower age groups and no schooling to positive correlations for the higher age groups and no

schooling for the non-white population is interesting. Because this indicates that despite the lack of education non-white people live a long life. Hence, other explanatory factors must exist for the long life of non-white people.
For the white males there are positive correlations between no schooling and almost all of the age groups, compared to only a few sporadic correlations for the equivalent variables for white females. There are few correlations for either GET or FET and age for the white populations, but generally strong, positive correlations exist for higher education and the upper half of the age groups. This is in line with what the theory suggests with regard to a healthy and longer life, e.g. refer Marmot (2004). The same trend is not seen for the non-white population groups for higher education. The assumptions that people without education have more children and experience shorter lives are not supported by the correlation analysis among the non-white populations.
Considering the descriptive statistics on average age for the non-white populations at the sub-place level for CTMM, the outcome of the correlation analysis is in line as the province of Gauteng tends to be better off than the rest of South Africa. However, the HIV/AIDS prevalence among the non-white populations and the resulting deaths among the young population can provide some of the explanation for the lack of correlation between no schooling and young, non-white population groups.

Education and Unemployment
The outcome of the correlation analysis between the different levels of education and the unemployment ratio is presented in Figure 6.5 below. Only significant correlations are included.

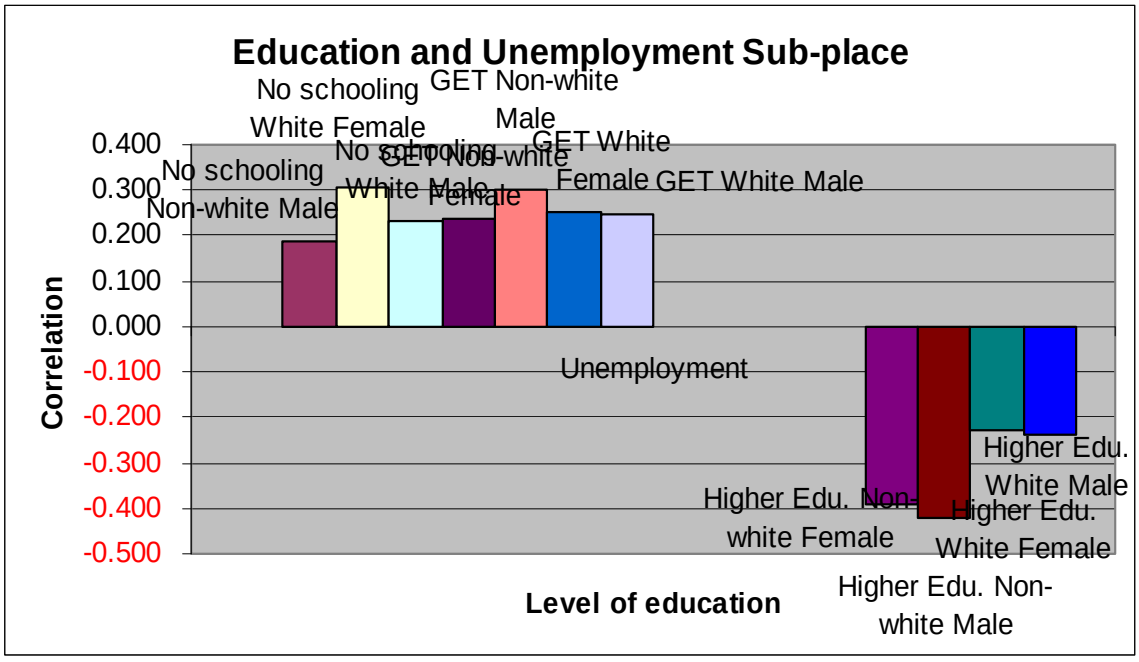


Figure 6.5: Significant correlations between education and unemployment on sub-place level

Figure 6.5 shows a uniform trend across genders and racial groups. Positive correlations between the unemployment ratio and the two lowest levels of education are congruent with the theories of Moleke (2005) and Valletta & Hodges (2005). However, no correlation between the unemployment ratio and 'no schooling' were found for the non-white female population. The non-white females living in the sub-places of CTMM who have no schooling

does not imply that they are unemployed. Large informal sectors or few economically active non-white females could act as explanatory factors. While there are no correlations between FET and unemployment for any of the population groups there are negative correlations between higher education and the unemployment ratio. This indicates that as more people achieve higher education the unemployment ratio declines. The correlations are almost twice as strong for both the non-white population groups compared to the two white population groups at higher education. This positive relationship indicates that achieving higher education provides employment.

6.3.2 Municipality

The correlation analysis for education and the three human development indicators on the municipal level in South Africa provided some interesting results which fit with the descriptive statistics.

Education and Income

The outcome of the correlation analysis between the different levels of education and the levels of income at the municipality level is presented in Figure 6.6 and 6.7 below. Only significant correlations are included.

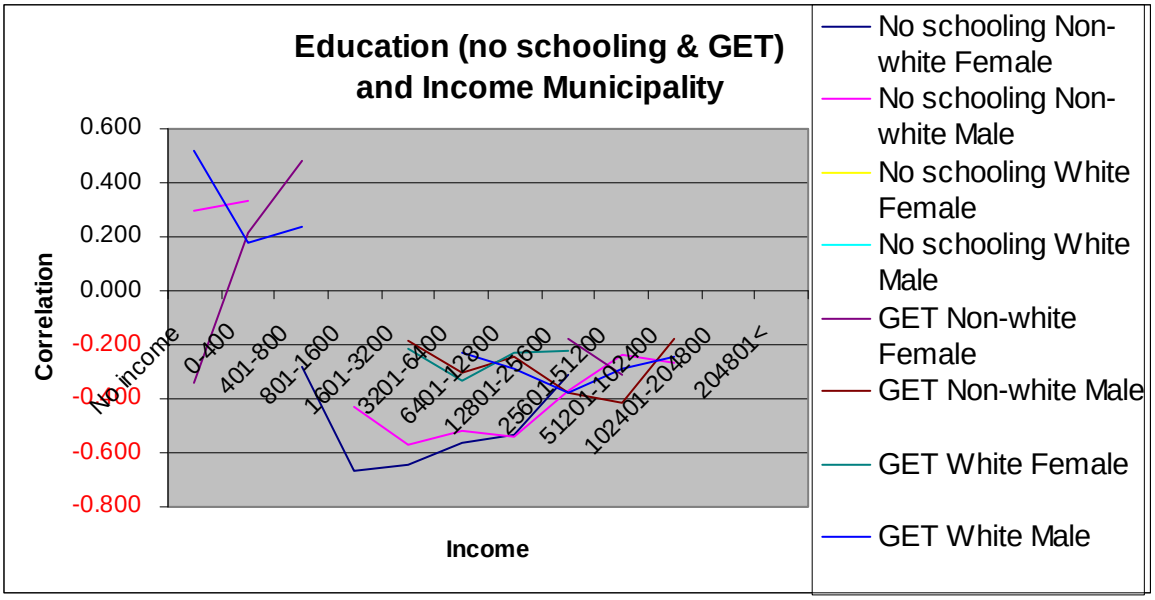


Figure 6.6: Significant correlations between no schooling- and GET-level of education and income on municipality level

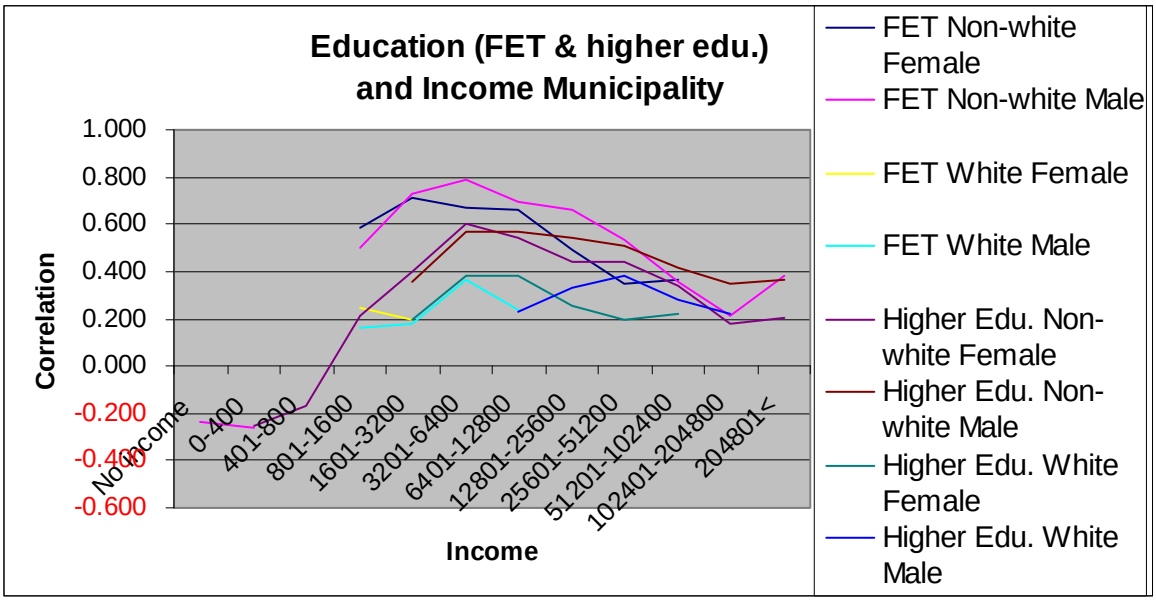


Figure 6.7: Significant correlations between no schooling- and GET-level of education and income on municipality level

Figure 6.7 shows strong, positive correlations between Higher Education and the upper half on the income scale (>ZAR 8400) for both genders and both population groups. As noted on the sub-place level. There is also a similar trend of negative correlations between Higher Education and the lowest levels on the income scale (<ZAR 8400) for all groups. This trend is clearly seen for the FET level of education, and especially for the non-white population groups which show strong, positive correlations up to the highest levels on the income scale. It is a lot more sporadic and not so uniform for the white males and females. This implies that by achieving FET the non-white population groups earn, on average, higher levels of income. The patterns regarding the GET level of education are unclear and sporadic for the lower intervals of income, but take on a uniform negative pattern for the higher income intervals. Even though the correlations vary in strength between GET and the upper half of the income scale, they are negative and mostly significant for all population groups. The ratio of non-white South Africans with no schooling generates strong significant correlations with the different levels of income. While the correlations are positive for no income and the lowest level of those earning some money per month, they turn negative from 401 ZAR per month and upwards. White males and females do not generate much significant correlations on the equivalent variables. While the traditional compulsory education for the white population is likely to cause the lack of significant correlations on 'no schooling', the ratio of the non-white population without education relates strongly and negatively with higher levels of income. The findings on the municipality level are to a large extent similar to the findings on the sub-place level for education and level of income.

Education and Age

The outcome of the correlation analysis between the different levels of education and the different age groups on the municipality level is presented in Figure 6.8 and 6.9 below. Only significant correlations are included.

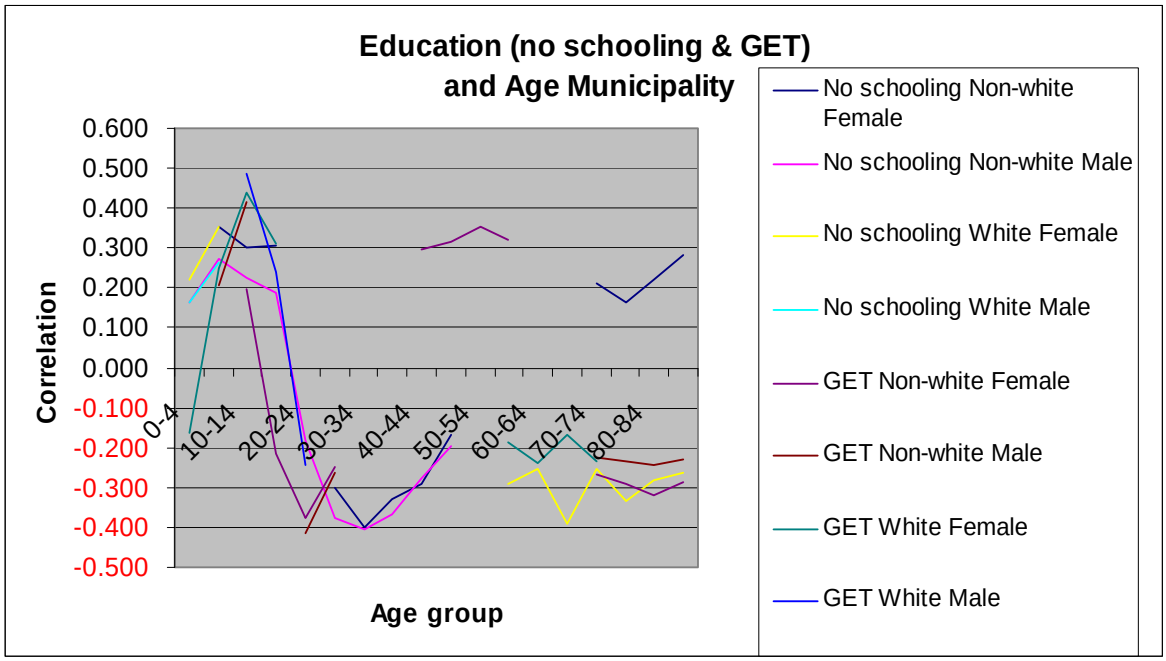


Figure 6.8: Significant correlations between no schooling- and GET-level of education and age on municipality level

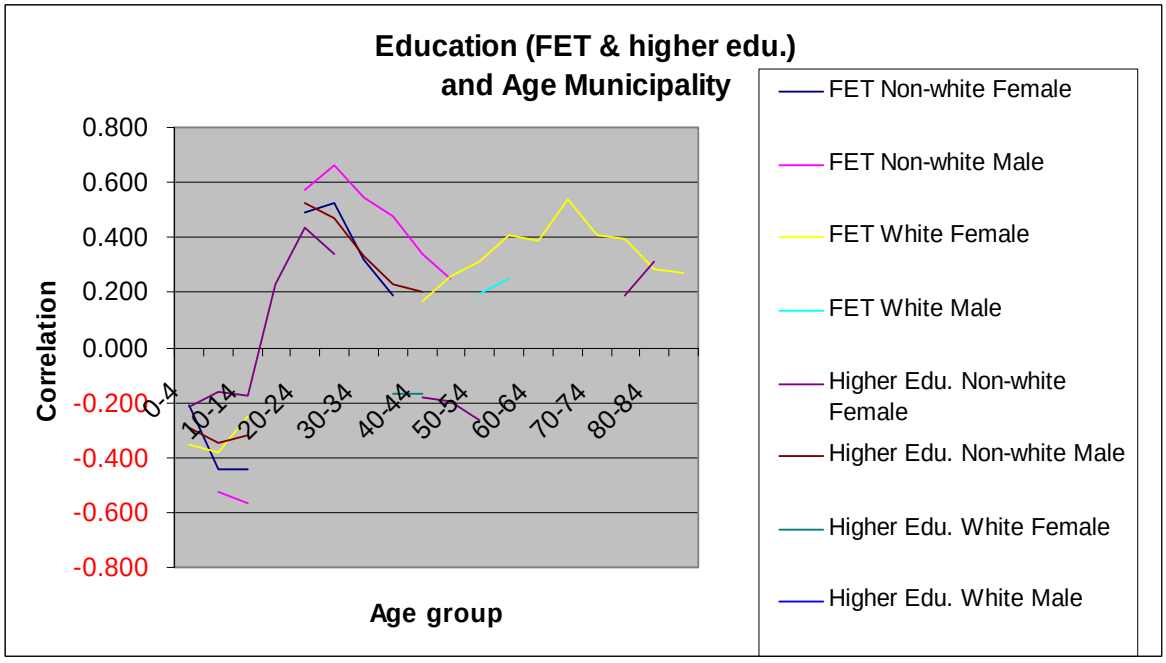


Figure 6.9: Significant correlations between no schooling- and GET-level of education and age on municipality level

Figure 6.8 and Figure 6.9 reflects varying and disjointed correlations across the different age groups. The results from the correlation analysis between the different levels of education and the different age groups do not support the assumption that higher levels of education lead to a longer life. Higher education does not show a general, positive correlation with the older half of the population groups for any of the genders or racial groups as would be expected. A peculiar finding in Figure 6.8 is the positive correlations between no schooling and the oldest age groups, while the correlations are negative between GET and the same age groups for the non-white population groups. This implies that people with no schooling live longer

than people achieved GET. This is an unlikely effect of GET. The effects of the apartheid discrimination of non-white people in basic education might provide some explanation as few of the people in oldest half of the age intervals (>45 years) might have received GET. The white males show a continuous negative correlation between no schooling and the oldest age groups. Similarly, they show continuous positive correlations between FET and the oldest age groups. The same pattern is however not evident for higher education. Despite the lack of a uniform trend across education levels, the correlations show some indication that more education is related to a longer life.

The problems and consequences connected to HIV/AIDS have impact on the age composition and are likely to influence the outcome of these correlation analyses. The ten year difference in average age between the white and non-white population showed in Table 6.8, the HIV/AIDS prevalence showed in Figure 4.6 indicate that the correlations are influenced by these facts.

Education and Unemployment

The outcome of the correlation analysis between the different levels of education and the unemployment ratio on the municipality level is presented in Figure 6.10 below. Only significant correlations are included.

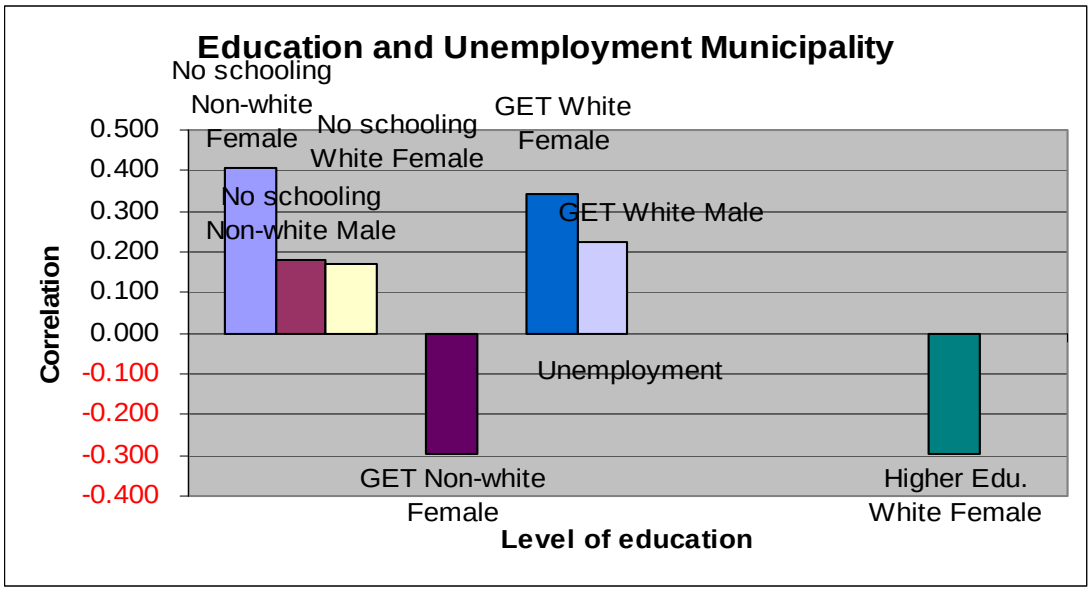


Figure 6.10: Significant correlations between education and unemployment on municipality level

The pattern seen at the sub-place level regarding education and unemployment is duplicated at the municipality level. With the exception of 'white males', there are positive correlations between no schooling and the unemployment ratio for the other population groups. The GET level also exhibits some differing results. The negative correlation for the non-white females indicates that achieving GET relates positively with regards obtaining employment. For the white population groups the GET ratios vary with the unemployment ratios and indicate that GET is not enough for obtaining employment. Similar at the sub-place level, the FET level generates no significant correlations for the unemployment ratio. The lack of significant, negative correlations between higher education and unemployment was not according to the strong support from the theoretical framework on the equivalent relationship. Except from a

strong, negative correlation for the white females, no significant correlations were recorded for higher education.

6.3.3 Province

The correlation analysis for education and the three human development indicators on the provincial level in South Africa was conducted using only nine records (nine provinces) and the outcome must therefore be seen as being informative but not statistically valid. The charts showing the different outcomes of the correlation analysis include whatever correlation coefficient recorded for the particular pair of variables. This implies that the lines are continuous from the lowest levels up to the highest levels of the independent variables. To avoid crowded charts only 'no schooling' and 'higher education' are included in the chart to visualise the contrasts for the two extremities.

Education and Income

The outcome of the correlation analysis between the different levels of education and the levels of income at the province level is presented in Figure 6.11 below. All correlations are included.

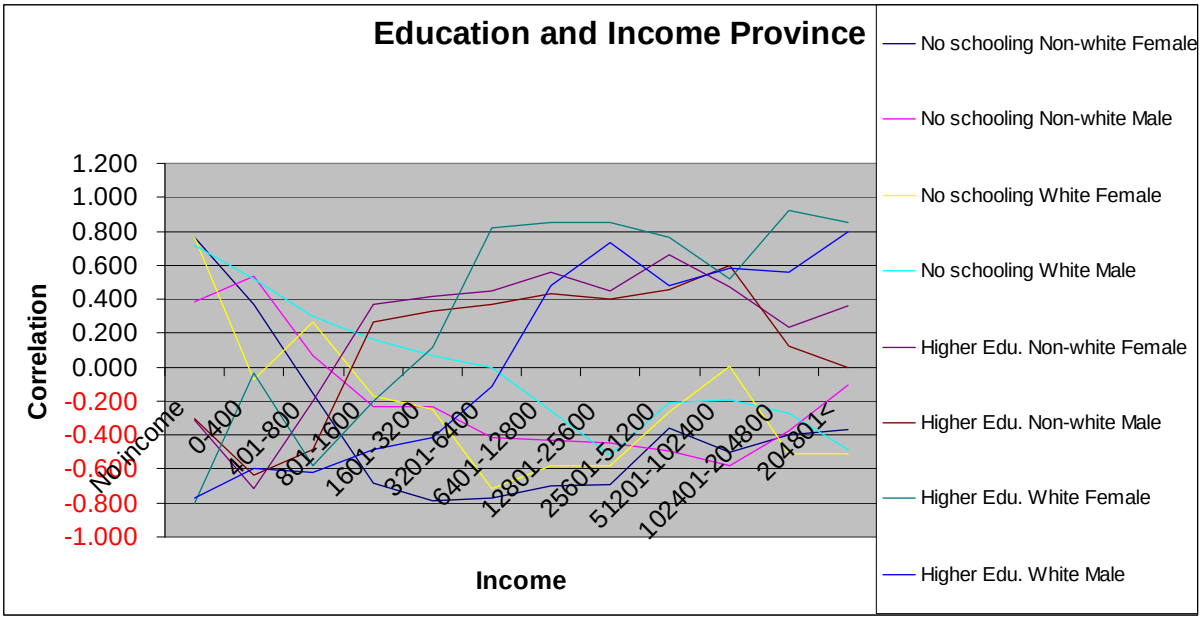


Figure 6.11: Correlations between education and income on province level

There are two clear patterns, common for all population groups that reveal themselves when contrasting the correlations between 'no schooling', 'higher education' and the different income level variables. 'No schooling' starts off with strong, positive correlations and declines into strong, negative correlations as the income levels increase. The opposite happens for 'higher education'. After starting off with negative correlations for no income and the lowest levels of income the correlations become strong, positive correlations as the income levels increase. This is consistent with results at both the municipality and the sub-place level.

The correlations for the white population groups change signs later than for the non-white population groups. The white population groups' correlations are later to become negative for 'no schooling' and later to become positive for 'higher education' than the case is for the non-

white population groups. This is indicative of the fact that education is important for the non-white population at the lower income levels when it comes to the determination of income level. The level of income does not positively correlate with higher education for the white population until the fifth and sixth interval while the non-white population sees a positive correlation on the third and fourth interval.

A similar trend can be seen with regards to gender. Both correlation lines for the male population groups change signs later than for the female population groups of the equivalent racial group. The male population groups' correlations are later to become negative for 'no schooling' and later to become positive for 'higher education' than the case is for the female population groups. This indicate that even if the male population has higher education it is not consistent with the income until it reaches close to 10,000 ZAR per month (white), compared to less than 5,000 ZAR per month for the white female.

Education and Age

The outcome of the correlation analysis between the different levels of education and the age groups at the province level is presented in the Figure 6.12 below. All correlations are included.

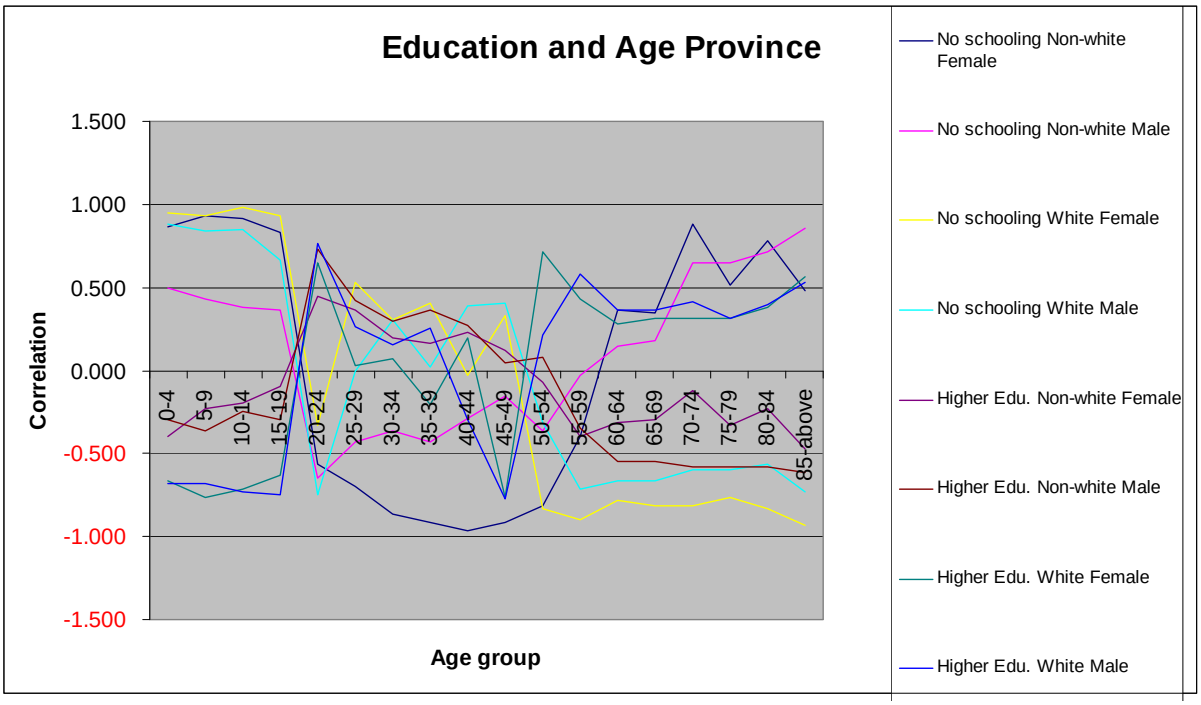


Figure 6.12: Correlations between education and age on province level

The patterns revealed for education and age at the province level are clear in both ends of the age group scale (0-15 and 55+), but more blurred for the age groups in the middle. All population groups show positive correlations between no schooling and the lowest age groups, and negative correlations between higher education and the lowest age groups. This is in accordance with an assumption that higher levels of education contribute to lower birth rates and hence a negative correlation with low age groups.

When correlation lines for the white population groups decrease and end up with strong, negative correlations for no schooling and the higher age groups, the equivalent lines for the non-white population fluctuate and end up approximately where they started at zero years. An

exact same trend can be seen for the higher education. When correlation lines for the white population groups increase and end up with strong, positive correlations for higher education and the higher age groups, the equivalent lines for the non-white population fluctuate and end up approximately where they started at zero years; strong, negative.

The white population groups follow the framework set out in the literature while the non-white population groups end up contradicting that higher education and longer lives are positively correlated.

Education and Unemployment

The outcome of the correlation analysis between the different levels of education and the unemployment ratio at the province level is presented in Figure 6.13 below. All correlations are included.

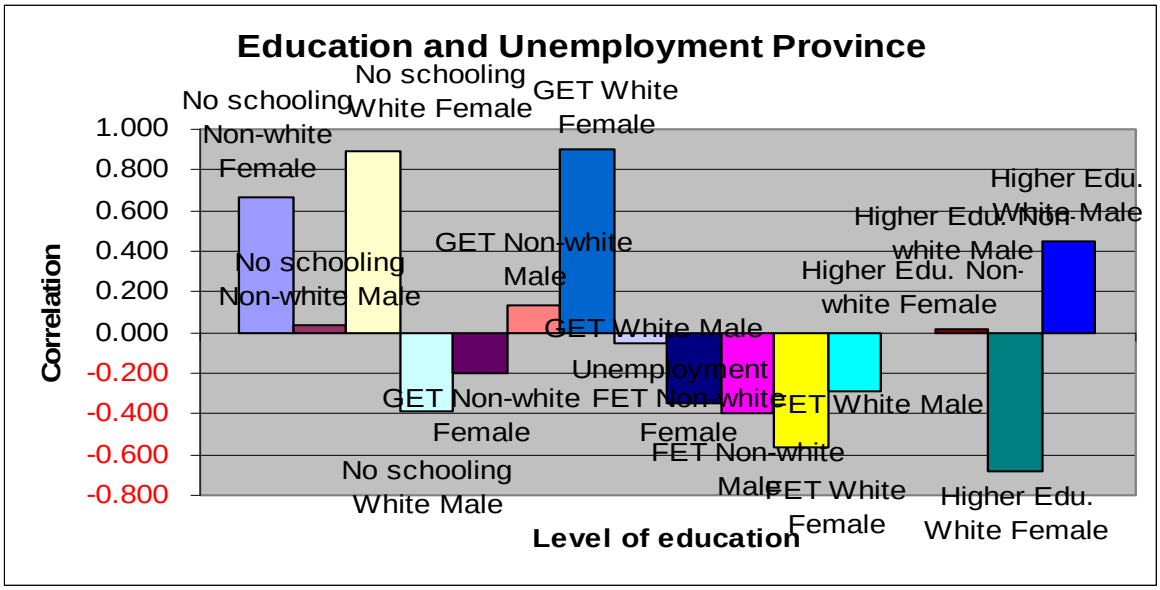


Figure 6.13: Correlations between education and unemployment on province level

The correlation coefficients between different levels of education and the unemployment ratios for the provinces differ substantially inter-racially and between genders. Except from common, strong, negative correlations for the FET level of education there are no uniform trend for the other levels. It is remarkable that only the white females show clear, negative correlations for higher education and unemployment ratios, and the only population group which show this outcome for all the geographical levels. At the same time, the white females show strong, positive correlations for both ‘no schooling’ and ‘GET’ on the province, municipality, and sub-place level. The white females are thereby the population groups exemplifying exactly what the literature suggests, e.g. by Moleke (2005) and Valletta & Hodges (2005).

6.4 Summary of higher education and human development indicators

The descriptive statistics clearly indicated that there are large racial and gender differences in South Africa regarding the human development indicators in question. CTMM has higher levels of human development than the average municipality in South Africa. The figures provided by SSA (2001) show how Gauteng is the leading province in South Africa, and the

CTMM is one of the biggest municipalities in the country. The correlation analysis for all the three different geographical levels of South Africa does however show that the trends in the human development indicators are the same countrywide.
In terms of higher education and income, the overall trend is positive correlations with the higher levels of income. In contrast, negative correlations are evident for the lowest levels of income. Both trends are evident independent of gender or race.

In terms of higher education and life expectancy, a lack of consistent significant correlation for the whole range of age on the municipality level weakens any overall trend. However, some clear trends which clearly separate the white and the non-white population groups are noticeable. While higher education is strongly, positively correlated to the upper age groups for the white population groups, the equivalent correlation analysis for the non-white population groups show negative correlations. The positive correlations implied in the literature framework get support only from the analytical outcome performed on the white population, while the non-white population is showing an opposite trend. The problems connected to the high HIV/AIDS prevalence is mentioned as an explanatory factor. The fact that the end of apartheid took place only 7 years prior to the 2001 census and the opportunity for non-white people to take higher education opened up with it, implies that a large proportion of the living generation in South Africa has missed out on higher education. Hence, the health benefits resulting from higher education fail to materialise for those who have missed out. A “transitional generation” can cause a delay in the positive correlations between higher education and higher age in the non-white population.

In terms of higher education and unemployment, the geographical differences are evident. At the sub-place level for CTMM, the correlations between higher education and the unemployment ratio are strong, negative, and independent of gender or racial group. On the municipality and province level, only the white females exhibit the same trend. With the exception of a positive correlation between white males’ higher education and unemployment ratios, and a contrasting negative correlation for white females’ higher education and unemployment ratios there are no correlations to speak of. This indicates that there are inter-municipal differences in South Africa. The case of University of Pretoria supports some of these findings done in the correlation analyses.

6.5 The case of University of Pretoria

The fieldwork conducted in relation to this research provided valuable information in addition to what is discussed above. Through the administration- and statistics department at University of Pretoria (UP) I succeeded getting hold of student records on undergraduate- and postgraduate students at UP for the period 1991 up to 2006. The records are divided into two sections; the period from 1991 to 1998 (in Afrikaans), and the period 1998 to 2006 (in English). Both sections are subdivided into four population groups (White, Coloured, Indian, and Black). The UP, and universities throughout South Africa, generally attract students from the nearby and surrounding areas and their student records are therefore reflected mainly in and around the nearby municipalities. Figure 6.14 shows the total composition (undergraduates and postgraduates) of students at UP from the period 1991 to 2006. The records are interesting as such, but also highlight and support some of the issues addressed through the descriptive statistics and correlation analysis. Some points can be drawn from these records displayed in Figure 6.14 below.

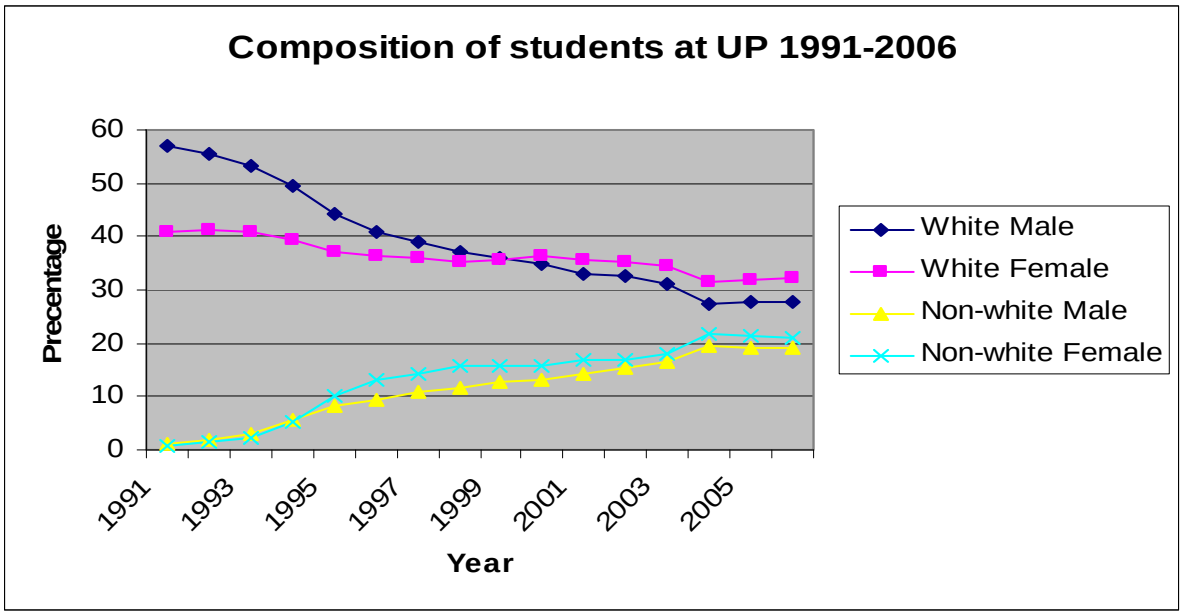


Figure 6.14: Total composition of students at UP for the period 1991-2006

The apartheid era and the discrimination in the sector of higher education is clearly reflected in the records from UP. From approximately no non-white students prior to 1994 and the end of apartheid the proportion of non-white students increases dramatically to approximately twenty percent in 2004. From the apartheid situation described by Parker (1972), into the transformation period starting briefly in 1989 and the numerous policies implemented in the transformation period (Cloete et al. 2004), the development of the student composition at UP indicates that the measures taken for increasing equity in higher education have worked as intended. As the proportion of non-white students at UP has increased the proportion of white students declined. However, the total number of students at UP increased from 22,563 in 1991 up to 38.389 in 2006. The decline in number of white students during the 1990s is therefore marginal (0 - ÷5% per year) and turns into a slight increase from the year 2000 onwards. The proportional and numerical increase of non-white students at UP should indicate that the non-white population in CTMM have significant correlations for higher education and human development indicators. Points in this regard are elaborated on.

First, the delay of non-white students who are getting higher education is clearly evident from the development of student-composition at UP. From almost zero in 1991 there has been a steady increase to approximately twenty percent non-white students of a total of 38,389 students at UP in 2006. At the same time, after a decline in the number of white students from 1991 up to 1999, the actual number of white students has increased slightly up to 2006. Despite the substantial increase in the number of non-white students, in proportion to the total non-white population there is a long way to go before it equals the level of white students. This is evident in the descriptive statistics where the ratios of non-whites with higher education are around four percent on the provincial and municipal level. For the sub-places of CTMM, wherein UP is located, the ratios are more than three times higher for the non-white population. Nevertheless, the gap and the following delay in higher educated non-white males and females will continue.

Second, female students for both racial groups outdo their male counterparts. The white males had been dominating the UP campus until the turn of the millennium. A decline in the number of white male students during the first half of the 1990s together with a rapid increase of

white female students in the years after the year 2000 brought the white females at the top of the statistics at UP. However, the many years of male domination have led to a delay in the proportion of females with higher education which is evident in the descriptive statistics. The non-white males and females have developed almost simultaneously from 1991 up to 2006, with a 2006 level of 19 and 20 percent respectively. The female domination is due to the higher proportion of undergraduate students at UP. When it comes to the postgraduate statistics the males are still leading. The female educational delay has been closed on the undergraduate level, but is still in the process of being closed at the postgraduate level.

Third, the development for the all the population groups has flattened out the last few years. The 2001-figures in this research are unable to make any indication for these last years.

6.6 Limitations

This methodology faces certain limitations. A clear limitation of the study is the fact that there are likely to be several cultural, socio-economic, and institutional aspects etc. that influence the population groups analysed. Likewise, a number of factors in addition to higher education influence the unemployment rate, income, and life expectancy ratios for the population groups. This is a quantitative study and will therefore exclude a number of qualitative and individual aspects influencing the variables in question. This research is an isolated comparison of higher education and the three human development indicators in question in order to reveal the patterns of how the development of these aspects during a revolutionary time with strong formal emphasis on redressing past discrimination and ensure representation and equal access to higher education institutions.

The study only includes people within the respective geographical areas analysed and will consequently not be directly representative for any other place.
The latest available census data is from 2001. A set of more up-to-date data would have been appropriate and given a more correct picture of today's situation.
Time is an essential factor when conducting a research with coherent fieldwork. The comprehensiveness of this study is therefore mirrored by the timeframe available and must be accepted on this basis.

Chapter 7
Conclusions and recommendations

7.1 Conclusions

Higher education is one of the most important means for promoting sustainable human development. The spreading consequences of higher education are felt from the macro level of cities and to the local levels of society. Achieving higher education has a positive impact on the development of the nation as well as for personal development. It is only recently that developing countries have acknowledged the importance of secondary and tertiary education. Previously, efforts were almost exclusively directed to the basic levels. South Africa under the apartheid regime only acknowledged secondary and tertiary for the white minority population while the basic education only was partly acknowledged for the majority non-white population. Decades of racial discrimination in the education sector resulted in a racial gap at the higher education level. In order to equalise this racial gap a number of public policies have been launched in the post-apartheid period. The policies have been aimed at instituting equity and equality in the higher education system and at the higher education institutions. The results of this study have shown that the abolishment of apartheid and the policies implemented in the aftermath have increased the level of equity and equality in higher education, but not to a satisfactory level. The number and proportion of non-white students in higher education institutions has increased substantially, but the proportion of non-white South Africans achieving higher education is however still small compared to the percentage of white South Africans.

South Africa is a vast and diversified country in many respects. With 47, 4 million people of four main population groups, divided into several tribes of different origins, speaking eleven official languages inside the same developing country, it stands to reason that it is a country of many facets. The fact that the population and economic activity are unevenly spread around the country is reflected in the outcome of this study. For the sub-places in Pretoria: City of Tshwane Metropolitan Municipality (CTMM), the exploration of the human development indicators indicated that human development in this geographical area is above country average. The province of Gauteng where most of CTMM is located is by far the most economically vibrant area in South Africa, generating one third of the country's gross domestic product. This study confirms the superiority by overall higher mean ratios of people with higher education, higher mean average income per month for both white and non-white citizens, and higher average age for the non-white citizens. Along with these findings are larger standard deviations a general trend across population groups and indicator. The standard deviations imply larger internal differences when exploring a more micro-level sub-place level compared to municipality and province level. The relationship between higher education and the human development indicators show the same pattern irrespective of spatial level analysed. Higher education is positively related to human development, with reservation of the previously mentioned inconclusive results on life expectancy.

University of Pretoria (UP) is one of the biggest and most prestigious universities in South Africa. The historically white university is located in the middle of the prosperous Gauteng province and CTMM. The gender- and racial- composition of its students has changed significantly over the last decade. From zero up to now constituting forty percent of the students at UP, the non-white students seem to have benefited from the numerous policies implemented to promote equity and equality. Female students have indeed entered the UP

campus and the white females now make up the majority group of students at the university. The women's liberation and a more recognised need for educating females seem to have had an impact on UP. The present feminist domination at UP correlates with the unemployment rates in CTMM. The sub-place level is the only level in which the white females have lower mean average unemployment rates than males. On income, the males still enjoy higher levels than females however.

The importance of higher education in sustainable human development and the relatively small proportion of non-white in higher education are reflected in the study. On average, the non-white South African earns less, lives shorter, and is more likely to be unemployed than his white counterpart. Higher education is nevertheless positively correlated with the human development indicators for both the white and the non-white population. The late entry into higher education for the non-white population implies a delayed effect on human development as the grown up generation missed out. Human development indicators are therefore affected and weaken the relationship between higher education and the indicators. Life expectancy shows overall inconclusive results as higher education are not positively correlated with high age for non-whites; the opposite results as for the white population.

Neglecting development for either of the genders implies neglecting the utilisation of potential in a population. Traditionally, there have been general trends of low proportions of females having achieved higher education. Educating females is one of the most important pathways to promote social and economic development. The benefits from educating females yield social and private returns which promote sustainable human development. While the non-white females together with their male counterparts have been discriminated from taking higher education in South Africa, the white females were underrepresented compared to their male counterparts up to the turn of the millennium. Presently, more white females enrol in higher education than males. In the case of University of Pretoria, the white females are predominantly outnumbering the males in the undergraduate statistics while it is even at the postgraduate level. The traditional pattern of male domination in higher education is no more. The ratios of males and females in the non-white population are approximately the same.

Lower average income and higher unemployment rates for females compared to males indicate that previously traditional low proportions of females in higher education continue to influence the level of human development in South Africa. The importance of educating females is however confirmed by the strong correlations between higher education and human development. The white females in South Africa have the strongest favourable overall correlation between higher education and the human development indicators in this study.

This study shows that there are racial-, gender-, and geographical differences in human development in South Africa. It shows that despite the differences there is a general, positive correlation between higher education and human development. There is room for improvement in South African higher education sector and continued emphasis on this sector will provide a sustainable human development in the country.

7.2 Recommendations for further research

A longitudinal study for the same topic is recommended which will reveal further developments on the human development indicators and their relationship with higher education. The continual changes of spatial boundaries in South Africa however represent a

major obstacle for a longitudinal study over several points in time, i.e. censuses. Both from Census 1991 to Census 1996 and further to Census 2001 the spatial boundaries have been changed several times and precluded any direct comparison. A conversion into one set of spatial boundaries will enable a longitudinal study of these and similar problems demanding continuous conditions. In year 2011, there will be conducted another census in South Africa. Notwithstanding the issues pertaining to spatial boundaries, it would be interesting to see the developments on this topic from 2001 up to 2011.

A breakdown into urban and rural areas would also add another interesting dimension to this problem. The internal differences revealed on different spatial levels are likely to correlate with the level of urban and rural population. To state a definition on ‘urban’ and ‘rural’ and break down the province-, municipality-, and sub-place level into the respective category would be more informative regarding the policies and their impact on the different type of areas.

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