



**THESIS TITLE (INVESTIGATING THE LINK BETWEEN  
GOVERNMENT EXPENDITURE ON EDUCATION AND  
EDUCATION ATTAINMENT)**

**By**

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qualification as per the PG2 form)**

**In the Faculty of Management Sciences (Human Resources Management)  
Durban University of Technology.  
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.....

.....

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**Date**

## DECLARATION

**The Registrar (Academic)  
Durban University of Technology**

Dear Sir or Madam

I Lungisani Godfrey Luthuli, 21029443

Hereby declare that the dissertation entitled:

**Investigating the link between government expenditure on education and education attainment.**

Is the result of my own investigation and research and that it has not been submitted in part or in full, for any other degree or any other institution of higher learning. Subsequently, other sources are acknowledged and giving explicit references.

Signed:.....

Date:.....

**TITLE (INVESTIGATING THE LINK BETWEEN  
GOVERNMENT EXPENDITURE ON EDUCATION AND  
EDUCATION ATTAINMENT)**

Lungisani Godfrey Luthuli

A research thesis submitted to the Faculty of Management Sciences,  
Durban University of Technology, Durban, in partial fulfilment of the requirements for  
the degree of Master of Technology in Human Resources Management

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## **ABSTRACT**

This study evaluated the effect of government expenditure on education attainment in South Africa by assessing the effect of the amount spent by government on education from 1980 to 2014 on human capital development. The study is centred around two objectives: (1) to analyse the effect of government expenditure on education attainment; and (2) to investigate the effect of education attainment on human development. Human capital development was measured using Gross Enrolment Ratio for secondary school, supplied by the South African Reserve Bank. Data on government expenditure on human capital was acquired from the Treasury database. The study draws from the human capital theoretical framework in explaining the effect of education expenditure on human capital development.

The findings of the study showed that there is a positive relationship between human capital development and government expenditure. These findings showed a strong relationship between government expenditure and gross enrolment ratio at 99 % confidence interval ( $p < 0,0001$ ). The theory of human capital is thus confirmed with these findings.

**Key words:** government expenditure on education, human capital development (education attainment).

**DECLARATION**

I, Lungisani Godfrey Luthuli, declare that this research is my own, unaided work, except as indicated in the acknowledgements, the text and the references. It is submitted in partial fulfilment for the requirement for the degree of in the Faculty of Management Sciences at the Durban University of Technology, Durban.

It has not been submitted before, either whole or in part, for any degree or examination at this or any other university.

Lungisani Godfrey Luthuli

Signed at .....

On the ..... day of ..... 2017

## **DEDICATION**

To my mother Nombikayise Elfriedah Luthuli.

You are an inspiration.

## **ACKNOWLEDGEMENTS**

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# **Chapter One: Introduction and Background**

## **1.1 Introduction for the Study**

The purpose of this study is to evaluate the effect of government expenditure on education attainment in South Africa. This is done by assessing the amount spent by government on education from 1980 to 2014. Education attainment is defined as the highest level of educational qualification an individual has successfully completed (Schneider, 2011:41). Educational qualifications can either be vocational or academic, usually measured by the number of years of schooling completed. Other scholars (Henken, 2010:124) have used grade 12 figures and graduation statistics to measure education attainment. Such a measure gives an indication of the level of competence of the individual. Although the measure is based on examination assessment it does not validate competence and skills developed.

Data for expenditure on education has been obtained from the National Treasury Department and from the Reserve Bank of South Africa. The study generates quantitative data from the above mentioned sources to test whether there is a relationship between education expenditure and education attainment. According to De Vos (2008:96:102), a quantitative approach favours structured data gathering in which the researcher can ask the same question from a number of respondents.

By conducting this research, the researcher established whether there is a relationship between government spending and education attainment. The overall aim of the study is to evaluate the impact of government expenditure on human capital development. The study focused on analysing human capital development from the period 1980-2014. It examines the challenges of the South African education structure, and how these have affected human capital development. In order to understand the effect of human capital development in a country it is important to take cognisance of the different demographic influences that affect education in South Africa.

The proportion of people living in poverty in South Africa has not changed between 1996 and 2001 (Steyn, De Waal, Wolhunter, 2011:13). However, households living

in poverty have sunk deeper into poverty and the gap between rich and poor has widened by 6.3 % (Steyn, 2011:54). This fact strongly underscores the fact that alleviation of poverty should have been the starting point of the new democracy rather than radical changes to an education system that would not alleviate the situation but instead broaden the gap between the poor and the rest of the citizens (Nongxa, 2010:23-27). Although South Africa has the best developed system of education on the African continent (a large portion of gross domestic product goes to education), many South Africans are illiterate and many children are learning in school conditions which resemble those in the most impoverished states (Nongxa, 2010:24).

Research shows that only a small portion of South Africans further their studies post-schooling (Brier & Mabizela,2008:21), and this has been found to have an effect on educational levels (Keswell & Poswell, 2004:57). Education and training present alternative channels through which individuals can acquire skills to increase their productivity and improve their prospects on the job market, but it is not clear whether education attainment is effective in providing the necessary skills to develop the South African economy.

Education is a priority area for the South African government. Over recent years, government has increased efforts to improve the state of education in the country. In 2010, the Department of Basic Education (DBE) released *Action Plan 2014, Towards the Realization of Schooling 2025*, a report outlining the priority areas that needed to be tackled within that period. The plan's overall aim was to improve learner performance by overcoming the weaknesses in the education system. This could be done by improving access to education, providing learning and teaching materials and by increasing the number of educators and improving their skills. It is necessary for all of us to acknowledge that there are many gaps in the system, which prevent the country from achieving its goals.

Differential educational expenditure by racial group was a pillar in the architecture of apartheid. School systems were divided by racial group with large funding and curriculum differences (Fiske & Ladd, 2004:69). In 1994, spending on white learners was about 1.5 times the spending on urban African learners and more than four

times the spending on rural African learners (Fiske et al. 2008:77). Since 1994 much attention has been paid by government to redressing educational expenditure imbalances by putting in place policies such as the National Norms and Standards for School Funding (NNSSF); the rollout of the no-fee school programme exclusively allocating state funds to low socio-economic schools; and the fee exemption policy providing low income households and grass recipients access to free education.

## **1.2 Problem Statement**

'Education' and 'human capital' are closely related terms and cannot be separated. In fact, human capital is largely determined by education received. It could be said that education is the main investment that a country can make. In South Africa, government has continually increased the budget allocation for education, and over the last five years education has been prioritised. Human capital – enhanced by a good education – is able to increase an individual's income (Petrakis, 2012:258). Education plays an important role in human capital development, influencing many countries to prioritise education because it has a positive impact on improving the nation's income (Santos, 2011:39, Surinach & Artis, 2012:89).

Lack of productivity is usually caused by human resources that do not have sufficient skills, knowledge and experience. South Africa, like other countries, has reformed its education system in order to produce better human resources. Education produces qualified people with skills, able to be competitive in the work environment. As well as experience, education also develops social linkages, morality and intellectuality (Haynes & Amarapurkar, 2009:167). These elements are the main requirements for working in an organisation.

An education system is the main element required to produce human capital. Garneiro and Heckman (2003:52) state that a revolution in education can impact positively on the quality of human resources. The cost of education is important in human capital development (Benfield & Levin, 2010:18). Psacharopoulos (1994:66) and Olden & Clune (1998:83) conducted research on the significance of education in achieving human capital. The study found that many nations have restructured their systems of financing education by increasing the budget and removing the gap

between the poor and the rich. Almost always, spending on education is an important element in achieving the ideal human capital. It is an investment for both the individual and the nation (Psacharopolous, 1994:285).

Human capital includes knowledge, which is the ability of an individual, received through education (Lucas, 1988: 69). Two factors most important in developing human capital in a country are education and learning by doing (Lucas, 1988:102). Other studies have shown that good human capital comes from good education, good skills and broad knowledge (Haynes and Amarapurkar, 2009:58, Bell & Stevenson, 2006:26).

### **1.2.1 Research Objectives**

- (a) to analyse the effect of government expenditure on education attainment
- (b) to investigate the link between education attainment and human capital development

### **1.3 Research Problems and Aims**

Through conducting this research, the researcher is hoping to establish whether there is a relationship between government spending on education and education attainment by individuals. The overall aim of the study is to evaluate the impact of government expenditure on human capital development. The study focuses on analysing human capital development from the period 1980-2014. It examines the challenges of the South African education structure, and how these have affected human capital development. In order to understand the effects of human capital development in a country, it is important to take cognisance of the different demographics that affect education in South Africa.

Education is crucial to South Africa's long term development. It may be considered to be the core element in eliminating poverty and developing the foundations of an egalitarian society. Education empowers people to define their identity, take control of their lives, take part in developing a society and play an effective role in the development of the economy (NPC, 2011:211). Education, training and innovation are not the solution to all problems, but improve a society's ability to solve problems.

Schools and tertiary institutions provide the building blocks for the development of individuals in South Africa. Nations with better educated people have an advantage when it comes to productivity in the workplace.

South Africa shares common characteristics with other developing countries. For example, Egypt has established standard assessments that cut across the different types of institutions delivering education. The same thing has happened in South Africa with the introduction of Annual National Assessments (ANA). The two countries also share administrative complexities. The Egyptian system is very complex as the responsibility for delivering education is shared by the state, the federal government and local government. In South Africa, the national government is mainly responsible for policy oversight, but the delivery takes place at the provincial level. While the system is less complex than that of Egypt, but it still creates problems in South Africa (Denise and Mehmet, 2012:79).

South Africa needs to improve and expand its higher education sector. The country needs to enlarge its skills base to give young people more opportunities of getting employment and produce better-trained teachers. All these objectives can be achieved by expanding access and developing the quality of education institutions, both at secondary and higher levels. Despite high government expenditure and very poor outcomes in terms of student performance, the situation is not sufficiently recognised (NCHE, 2011:101). This study will try to quantify the impact of education expenditure on human capital development.

Creativity and innovation are considered important tools for enhanced productivity and sustainable development. Education and training are believed to contribute to the promotion of these capacities. Expanding the size, quality and diversity of post-school education in South Africa is important and without this, it will be hard to achieve these critical national objectives.

The research addresses the following questions.

- (a) What is the effect of government expenditure on education?
- (b) How is government expenditure and education attainment linked to human capital development?

## **1.4 Human Capital Development**

The study draws from theoretical frameworks on human capital development, as explained in the World Economic Forum (2013) report on Human Capital. According to the World Economic Forum, human capital is defined as the stock of competencies, knowledge, skills, social and personal attributes, including creativity, embodied in the ability to perform labour so as to produce economic value (World Economic Forum, 2013:185). Senior certificate enrolment figures and graduation rates are some of the indicators used to measure human capital development.

As reported by the HSRC (2013:256), South African citizens who are 18 years or younger number an estimated 20 million. This source further revealed that 562 112 students enrolled for matric in 2013, while the other students dropped out or failed before attaining the Grade 12. Among the matriculants, only 245 663 (43%) students enrolled for mathematics, while 187 170 also wrote the physical science examination, (HSRC, 2013:260).

Human capital is seen as one of the most important factors influencing the prosperity of a country. Human capital can be reflected in levels of education and training, as well as in health (Ramirez et al. 1998:63). This study further revealed that investment in education in order to improve human capital would benefit the individual as well as the country. It further stated that a population's education will determine its ability to absorb and organise the resources necessary for economic growth, such as technology.

In a study by Wibisono (2001), of variables such as educational attainment (which is measured through the successful completion of different levels of education) life expectancy and rate of inflation, it was found that education was the greatest contributor to economic growth. According to the report on human development in Indonesia, there is a relationship between human capital development and economic growth.

Human capital has been identified, not only as a major growth factor and a channel to ease poverty, but also as very important in improving quality of life for human beings in general. A study by Mansur (2009) found that education provides better work opportunities and increased levels of income for an individual. Education is perceived to be an important factor in human capital formation. The study also

revealed that there is a correlation between education investment among women and fertility. Educated women are able to earn higher wages and this increases their ability to support their children.

Human development through education increases the productivity and income of the individual, which in turn improves the wellbeing of the country as a whole. Increased efforts to develop human capital in society produce people who can positively contribute to the progress of the country (Mansur, 2009: 89). Investment in education is crucial to a country's development through increasing the productivity, skills and efficiency of human capital. All efforts by government to provide facilities to improve the education infrastructure, as well as increased financial assistance, are important, because the qualities necessary in human capital rely not only on effort, but also a modern sophisticated educational system conducive to their support (Mansur, 2009:90).

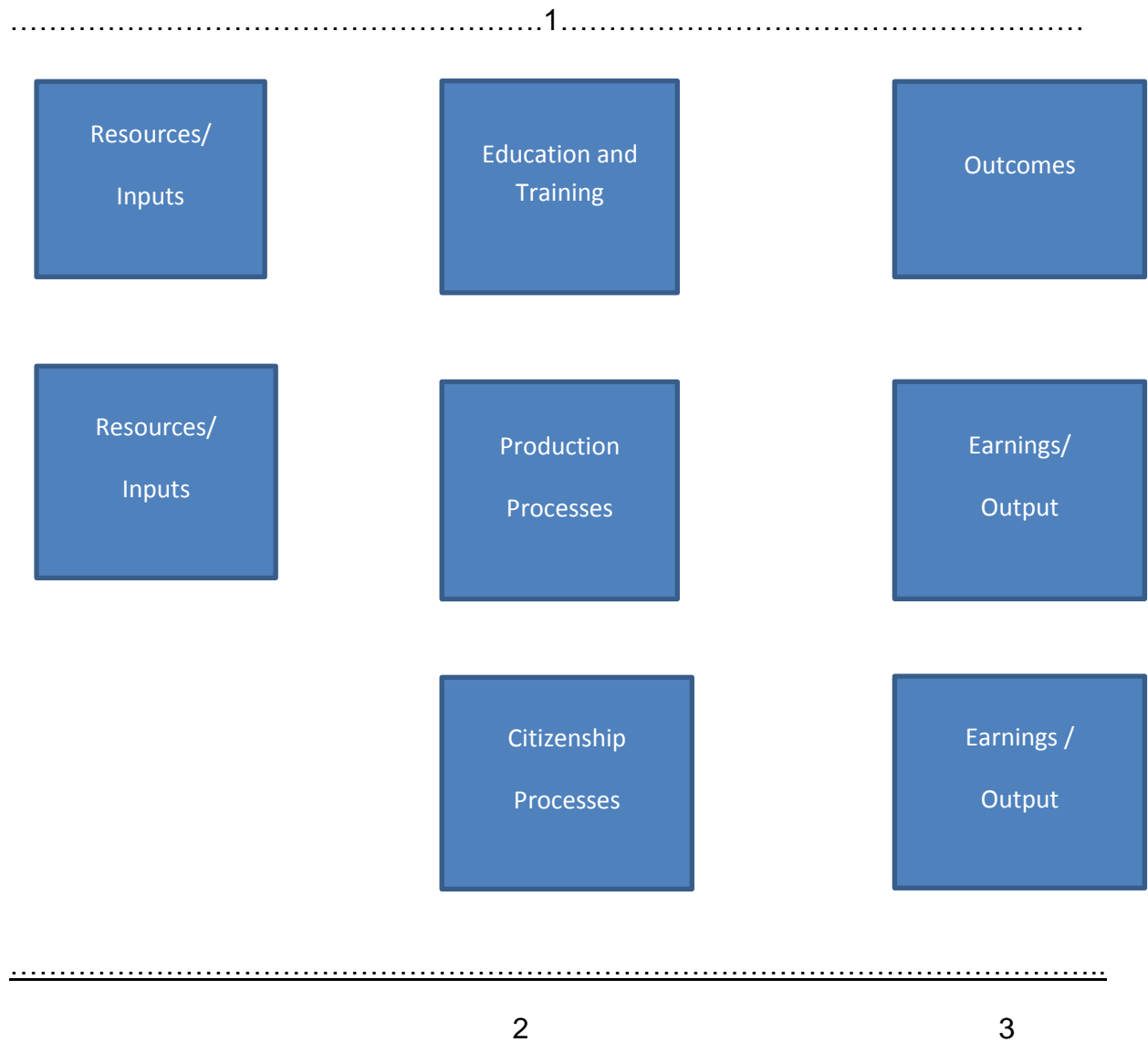
#### 1.4.1 Human Capital Theory

The theory of human capital comes from the field of macroeconomic development theory (Schultz, 1993:64), a theoretical and empirical analysis with reference to education. Becker argues that there are different kinds of capital that can include schooling, computer training courses and so on. Expenditure on education and training is investment in capital (Becker, 1993:67): these are not simply costs but investments which have value returns that can be calculated. Emphasising the social and economic significance of human capital theory, Becker said that the most valuable of all capital is investment in the human being.

Becker distinguished between firm-specific human capital and general-purpose human capital. Firm-specific human capital includes expertise obtained through education and training, etc. General-purpose human capital is knowledge gained through education and training in areas of value to a variety of firms, such as generic skills in human resource development (Becker, 1993:87). Becker considered education and training to be the most important investment in human capital.



**Figure 1:** Key relationships in human capital theory and the assumptions underlying these relationships.



**Figure 1:** A model of Human Capital Theory (Swanson, 2001:110)

Relationship 1: represents the concept of production functions as applied to education and training. The key assumption in this relationship is that investment in education and training results in increased learning.

Relationship 2: represents the human capital relationship between learning and increased productivity. The key assumption underlying this relationship is that increased learning results in increased productivity.

Relationship 3: represents the human capital relationship between increased productivity and increased wages and business earnings. The key assumption in this relationship is that greater productivity results in higher wages for individuals and higher earnings for businesses (Swanson, 2001:49).

#### 1.4.2 Human Capital Externalities

It has been recognised that the rewards of investing in human capital are not restricted to direct recipients, but spread to others in society (Acemoglu, 1996:123). A well-educated and highly trained workforce may well improve the productivity of their less educated colleagues. Acemoglu argues that an increase in the average level of human capital will cause the firm to anticipate growth and therefore make greater investments in physical capital as well as research and development. The direct effect of education on the economic growth or prosperity of the country is distinct from its direct effect on externalities (McMahon, 2000:221). The non-market externalities are health, environmental impact, crime, better income distribution and so on.

The benefit to human capital externalities in the economy is more than a mere spill-over from education. Investment in education is important and training is important, not only as a direct contributor to growth but also for its positive benefits to indirect externalities.

#### 1.4.3 Environmental Externalities

Investment in education creates environmental spill-overs in many different ways: a more highly educated workforce chooses safer occupations and societies with higher levels of education introduce health and safety laws to protect employees (Grossman and Kaestmer, 1997:91). Higher levels of education will lead to the creation of sustainable environments. While faster economic growth is associated with global warming, an educated population is able to take steps to correct some of this damage without sacrificing gains in growth (McMahon, 2000:164).

#### 1.4.5 Human Capital Development from a Skills Development Perspective

In order to improve national productivity levels, and for South Africa to compete successful internationally, there is a pressing need for optimum development of the country's skill sets (Hammond, 2011:32). The Skills Development Act put in place the structure to support workplace centres of learning and further created a legislative framework that promotes skills development in South Africa (Hammond, 2011:52).

## **1.5 Research Design and Methodology**

Secondary data collected by Statistics South Africa and sourced by government databases have been used to test the hypothesis that government spending on education has a positive influence on education attainment. In order to test the hypothesis, the study uses Ordinary Least Square (OLS) – a regression technique that uses linear and metric values to test or predict the effect of one variable on the other.

Ordinary Least Squares regression is a generalised linear modelling technique that may be used to model a single response variable which has been recorded on at least an interval scale. It can be applied to single or multiple explanatory variables and also categorical explanatory variables that have been appropriately coded (Moutinho and Hutcheson, 2011: 224-229).

## **1.6 Validity and Reliability/ Trustworthiness**

### **1.6.1 External Validity**

External validity is the property that allows the research findings to be generalised to a large population. External validity is a concern when constructing experimental and non-experimental (observational) research designs. Researchers need to ensure external validity through the careful construction of their research design (Heather, 1984:77).

There are three main threats to external validity: non-representative samples, an artificial laboratory environment and testing effects. Lyenda and Peters state that

researchers increase the external validity of their studies by being mindful of these threats when creating their research designs. Frankfort and Nachmias (2000:126) explain that researchers must be careful of the trade-off between external and internal validity when constructing a research design.

### 1.6.2 Validity and Reliability

According to Joppe (2000:43), reliability refers to the extent to which results are reliable over time, and their exact representation of the total population under study. If the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

Kirk and Miller (1986:92) recognise three types of reliability in both qualitative and quantitative research:

- (a) The extent to which a measurement remains the same;
- (b) The constancy of a measurement over time;
- (c) The similarity of measurements within a given period of time.

Charles (1995:105) notes that when a respondent answers a set of questions, the score obtained represents only a limited sample of behaviour. Therefore, the score may change due to some characteristics of the respondents, which may lead to errors of measurement. It is therefore vitally important for test or question developers to always assume the responsibility of demonstrating the reliability of results from their scores.

Joppe (2000:158) describes validity as a measure to determine whether the study truly measures that which it was anticipated to measure, or how truthful the research results are. In other words, does the research instrument allow you tackle the most significant aspects of your research project? Researchers generally determine validity by asking a series of questions and often look for the answers in the research of others.

## 1.7 Financing of Education

Money is invested in education because it is perceived to have value. In other words, education is financed or funded. The advantages of education can be described as having individual and social benefits (Classen, 1995:35). Examples of the benefits of education to the individual are individual empowerment through the development of a person's personality and his or her critical insight; and by providing a person with appropriate skills from which he/she can earn a living. Examples of the social benefits of education are that a literate, educated population leads to stability in a country and the economy benefits from skilled, educated people (Classen, 1995:38).

It should not be assumed that all people regard formal education as valuable. Some people perceive public education and schooling to be seriously flawed (Illich, 1971:89). Some of their arguments include the following:

- Education systems are extremely expensive to maintain.
- The poor quality of schools and of teaching does not justify its funding.
- Instead of a government sponsored curriculum, individuals, families and groups should decide their own knowledge.

### 1.7.1 Who Pays for Education?

A difference is drawn between private, or individual, and public funding (Classen, 1992:13). Individuals spend their money on goods and services, such as education, that they consider essential. Examples of private expenditure in education are: school fees contributed by parents at public schools; and incidental expenses borne by the learner and parents, such as the cost of transport, textbooks and school uniforms. An individual is not simply left to his or her own devices to pay for education. Public schooling is determined by the idea that a child's future should not be restricted by his or her own parent's wealth and influence. Public funds are used to create a public education system (national education system) that provides access to education for all learners.

The level of state financial support for education differs from country to country. A developing country, which sees a direct correlation between education and national

development, may spend a huge part of its budget and Gross National Product (GNP) on education (Classen, 1992:19). That is the case in South Africa. On the other hand, a developed country, such as the United States, with an adequate, established education infrastructure, and which wants to decrease the role of the state in funding, may spend less on education.

### 1.7.2 How much does government spend on education?

The most common indicator of the level of educational funding is public expenditure (government spending) on education as a percentage of the total budget and GNP.

The total budget: The government spends money in accordance with the annual national budget, determined by its income, which it derives from different sources such as personal tax and value added tax (VAT).

The Gross National Product: The GNP is the total of all products and services produced in a country, reflecting all economic activity.

Education has to compete with other social and public services, such as the police, defence, welfare, pensions and transport for funds. In South Africa, education usually takes up approximately 21% of the budget, leaving about 79% to be spread among eighteen, or more, other government departments. Critics can reasonably complain that education is taking too large a slice of the national budget cake. If education takes up such a big slice of the national budget, then it should deliver the goods. In other words, the population should see that education spending delivers positive benefits such as quality teaching, well-run schools, skilled and knowledgeable learners, a relevant curriculum and good school and matriculation results. Often questions are being asked about the cost effectiveness of education expenditure in South Africa.

### 1.7.3 The Issue of Free Education

The question of free education has been raised over time: different student organisations have committed themselves to advocating for free education. Is there

such a thing as free education? All countries are committed to free education, at least in the primary and secondary phases. Free education is frequently associated with compulsory education, since it is difficult to enforce compulsory education if it is not provided free of charge by government. The elected government in South Africa is dedicated to providing free and compulsory education up to grade 12 (RSA, 1996:106).

Education always costs something and somebody has to pay for it. Even when the state finances education, education is still not free, because government is reliant on the people for its revenue. There is no such thing as free education in the sense that education does not have to be paid for by somebody, but it is common to use the phrase 'free education' to describe education that is free of charge (Bray, 1990:59).

Education that is free of charge for the user (not free education) is defined differently in various countries (Berkhout, 1993:83). In one country, a government may pay for things such as textbooks and transport, while these may be excluded in another country; but both countries would officially claim that they provide free education. The following two major factors make it difficult for governments to sustain education that is free of charge (Berkhout, 1993:72):

- Population: Population growth is deemed the most important factor determining the demand for education. In 1993, approximately 145 million children (almost three times the entire population of South Africa) could not be enrolled in schools worldwide because of a lack of facilities, despite a global commitment to provide universal primary education.
- Economic decline: With a few exceptions, economies throughout the globe have shown a decline since 1970, and high inflation rates are a symptom of this decline. Financial maladministration in some African states and the financial costs of maintaining apartheid in South Africa also played an important role in economic decline.

#### 1.7.4 The Education Financing Process

The education financing process implemented in a country depends on the type of government – so whether the state system is socialist or democratic – and involves two components: namely, the generation and allocation of funds. A state can access funds for education through various types of taxes, state loans and school fees from parents. In all countries, education is mostly financed by the government and this funding is done through the national budget process (RSA, 1995:63).

The allocation of funds for education in a country also depends on the kind of state system it has. In South Africa, the Central Education Department regulates the funding allocations made to different provincial education departments by using a subsidy formula. The purpose of the subsidy formula is to make proper annual estimates for individual education departments. Most expenditure, including operating expenses, increases with the number of learners (RSA, 1996:201). After negotiations between the Minister of Education and the Minister of Finance, the final allocations are made on the basis of the subsidy formula, within the ability of treasury. In South Africa, independent schools, also known as private schools, are subject to certain requirements, with less than one quarter of their operating expenses subsidised; while the corresponding percentage at public schools differs (RSA, 1996:100).

In the 2006/7 financial year, South African education departments spent almost R93 billion on education. Relative to other comparable countries, education spending in South Africa as a proportion of the GDP seems, at face value, to be high. It has been debated whether this high proportion is due mainly to the relatively high level of educator salaries, as spending on other inputs seems to be below some international norms (Department of Education, 2006:44).

Education expenditure takes place at provincial and national levels. Provinces fund education from their equitable share allocations from the national fiscus; conditional grants from the national department; and their own revenue (minimal). There has been substantial progress in achieving funding equity, both between provinces and schools, as increased real funding has interacted with pro-poor funding patterns in terms of the South African Schools Act (Gustafsson, 2005:66). According to one measurement, public spending per African learner increased by 75% between 1991



and 2005 (Gustafsson, 2005:74). In 2006, the average annual expenditure per learner in public schools was estimated at about R5 500 (National Treasury, 2007:94).

Provincial education expenditure is classified into eight budget programmes: administration, public ordinary school education, independent school subsidies, public special school education, further education and training, adult basic education and training, early childhood development and auxiliary and associated services.

### **1.8 National Expenditure on Education**

The state must fund public schools from public revenue on a reasonable basis to ensure the proper exercise of the rights of learners to education and the redress of past imbalances in educational provision (Republic of South Africa, 1996). South Africa's education expenditure increased between 1995 and 2002 from R31.1 billion in 1995 to R59.6 billion in 2002 and grew quickly to reach R105.5 billion by 2007. This followed a similar growth pattern in GDP (National Treasury, 2007:11). Expenditure on education grew by 49% between 1994 and 2005 (National Treasury, 2005:36).

The South African government should not be disappointed by the fact that there is a poor relationship between spending on education and learning outcomes. Key education investments and transformations need time to settle down and bear fruits and the capacity of provincial departments to absorb traditional resources is still limited.

<b>ZAR Million</b>	<b>2003/4 Outcome</b>	<b>2004/5 Outcome</b>	<b>2005/6 Outcome</b>	<b>2006/7 Prelim.</b>	<b>2007/8 estimated</b>	<b>2008/9 estimated</b>	<b>2009/10 estimated</b>
EC	10 308	10 654	11 523	12 873	14 726	16 616	17 681
FS	4 087	4 400	4 916	5 346	5 692	6 331	7 013
GP	9 539	9 835	10 406	11 623	14 543	15 967	17 131
KZN	12 022	13 033	15 030	16 234	18 577	20 3385	22 533
LMP	8 264	9 610	10 362	11 367	11948	13 638	15 022

MP	4 529	4 871	5 780	6 273	7 956	8 601	9 373
NC	1 305	1 397	1 563	1 643	2 267	2 535	2 771
NW	4 896	5 179	5 951	6 686	5 324	5 936	6 462
WC	5 305	5 691	6 449	6 920	7 685	8 497	9 341

**Figure 2:** Figures showing a growth in total education spending, but its share of (total) provincial spending declined from 45.7% in 2003/4 to an estimated 41.8% over the period up to 2009/10 (National Treasury, 2007:154).

Source: National Treasury Provincial database, cited in National Treasury (2007b), Provincial Budget and Expenditure Review 2003/4 to 2009/10. National Treasury, Pretoria.

### 1.8.1 The Way Forward in Financing Education

According to the South African constitution, education at all levels, excluding higher education (universities and technikons), is the duty of provincial legislatures (RSA, 1996:37). All nine provinces have the exclusive responsibility to finance their schools from the central government and subject to national guidelines, such as those included in the two white papers on education (RSA, 1995:41). Education funding in South Africa comprises the following aspects (RSA, 1995:53).

- At national level, government raises the education budget. Two important guidelines for establishing the national budget are the following:
  - Equal funding for all race groups: In order to accomplish this, the level of funding should be well below that of schools formerly managed by the former House of Assembly (white schools), but above that of schools of the former Department of Education and Training (DET) (black schools). One result is that those schools which want to maintain previous levels of funding need to generate their own funds (RSA, 1996:69).
  - Equitable teacher/learner and class size norms: Teacher/learner ratios are pegged at 40:1 in primary schools and 35:1 in secondary schools.
- The income that is raised is distributed to the provinces. This disbursement will not be according to an exact per capita ratio: even if the

Northern Cape and Western Cape have the same number of learners, the Northern Cape may have a bigger allocation from central government for two reasons (RSA, 1995:146). Firstly, educational backlogs are much bigger in the rural Northern Cape, so more expenditure is needed to redress these inequalities. Secondly, according to provincial preferences, although a province receives a global budget from the central government which it distributes according to the guidelines supplied by central government, it may highlight one specific service, such as transport, downscaling its education budget without disregarding the national guidelines on providing free, compulsory education.

- Three options for school financing are considered in the Hunter Report (RSA, 1995:31). A minimalist gradualist approach necessitates the implementation of a school model that would function more or less like the former model C schools in regard to their financing. An equitable school-based formula approach is based on the previous approach with the difference that the state's per capita allocation can differ according to the circumstances of the school. Lastly, a partnership funding approach stresses that the core-responsibility for the funding of schools be borne by other role players such as parents. The latter approach has mostly been adopted by government. Partnership funding is based on recognition that the provision of quality education for all at no direct costs to parents and communities is not affordable in terms of budgetary allocations to education.

### **1.9 South Africa's School System Today, Progress and Problems**

If we compare the school system during apartheid with the structures that exist today, it is clear that things have changed for the better. South Africa has one of the highest rates of school enrolment in the whole of Africa, with a similarly high rate of girls attending elementary schools, (Jansen and Taylor, 2003:62). It is not surprising that German development aid for the South African system focuses on secondary and tertiary education and vocational training.

If we look at the country's present school system in more detail, we can say that South Africa is on the right track towards realising the Millennium Development Goals in the areas of elementary education and gender equality. But the drop-out rate of pupils who leave school system early and without school-leaving qualifications is dramatic (Statistics South Africa, 154). Along with the registration and attendance statistics, the results of national school-leaving examinations, 'the matric', reflect the shocking state of South Africa's education system (Statistics South Africa: 163). School leavers in 2010 attained an average pass rate of 67.8%, an improvement of 7.1% over the previous year; but the matric pass rate speaks little about the quality of education, as the pass rate alone does not show that many pupils only achieved the lowest pass mark of 30%. Only 25% of school-leavers achieved the marks required for university entrance (Embassy of the Federal Republic of Germany Pretoria, Building, 23-58).

The 2008 matric results showed that the South African Ministry of Education has not been able to develop a viable education system, nor have they closed the gap between the previously disadvantaged and favoured groups (Reviews of National Policies for Education, 2008:147). In general, South Africa also comes up short in international comparative assessments such as the Mathematics and Science Study(TIMMS). In 1999 and 2003, other assessments showed similarly negative outcomes, not only in comparison with the developed nations but also compared to other African countries (TIMMS Score, 2003 and 1999: 65-94).

Access to education and quality of education are not reflecting the large amount of money that has spent in the education system. Since 1994, South Africa has poured huge amounts of funding into the education sector to sweep away educational disparities and bring poorer schools up to the same level as richer schools. In 2006, as part of government's Pro-Poor policy, 49% of educational funding was spent on 40% of the country's poorest population (Servass van den Berg, 2011:33). In 2011, R189.5 billion was budgeted for education, of which R145.5 billion was invested in basic education (Statistics South Africa: 90). It is important to note that there is not always a correlation between spending and output.

## 1.10 Higher Education

The environmental and racial fragmentation of facilities, structural inefficiencies and duplication of services in South Africa's higher education system have been systematically addressed since 1997 with the appearance of the White Paper on Higher Education in 2004. Higher education institutions are assured academic freedom under the constitution and institutional independence under the Higher Education Act of 1997.

Constitutionally, higher education is the responsibility of the National Department of Education, which spent over R14 billion in 2006/7 (Department of Education, 2008:18). Government expenditure on higher education increased at an average rate of 10% per annum since 2004 and was projected to continue to do so in the coming years. In 2006, there were 741 383 higher education students being serviced by 16 077 lecturers (Department of Education, 2008:92). The average student: educator ratio in public higher education institutions in 2005 was 46:1.

In 2001, the National Education Policy for Higher Education, which provided the implementation framework for transforming the higher education system, set a target for the participation rate in higher education at 20% over a 10 to 15-year period (Ministry of Education, 2001:158). In 2000, the gross enrolment ratio in higher education (enrolment in higher education regardless of ages, as a proportion of 20-24 year olds in the population) was 12.9%. With large increases in higher education enrolment between 2000 and 2006, the participation rate increased gradually (Department of Education, 2007:130).

The Department of Education credited the National Student Financial Aid Scheme (NSFAS) with accounting for a third of the increase in enrolments at higher education institutions since the mid-1990's (Department of Education, 2004:224). According to 2005 projections, government's contributions to NSFAS were expected to grow from R578.2 million in 2004/5 to R1.1 billion in 2007/8, of which about R120 million was reserved for initial educator training bursaries and R100 million for FET college bursaries (Wildeman, 2005:102). In contrast, in 1994 only R10 million was available for student financial aid (Department of Education, 2004:79).

In 2006, 61.0% of all students (451 108) in the public higher education system were black Africans; 25.0% (184 668) were whites; 7.4% (54, 859) were Indian and 6.6% (48 538) were coloureds. Females represented 55.1% (408 718) of enrolments (Department of Education, 2008:231). In 2005, 120 063 graduates were produced nationally (Department of Education, 2006:56). The average success rate of black African student undergraduates was only 69.8% compared to an average of 84.7% for White students (Department of Education, 2006:28

Subotzky (2003:66) indicates that 'the main patterns of higher education enrolment and graduation reveal the system is not fulfilling its human resources development function efficiently'. Six main areas of concern were identified: increasing the size of participation rates in the sector; improving efficiency of inflows into and within the sector; the relevance of outputs in terms of fields of study and qualification levels; equity; quality of outputs and capacity to implement change and meet transformational challenges. These challenges can be addressed by the restructuring of the sector and changing the funding formula to allow for greater steering of the system (Subotzky, 2003:77

## **Conclusion**

This chapter presented the main purpose of the study. The problem statement and research problems and aims were discussed. The contextual background on the development of human capital in South Africa is provided and how it is financed was also provided. Issues surrounding debates on free education in South Africa were discussed. The next chapter (Chapter 2) will critique literature around the two variables of this study: (1) human capital; and (2) education expenditure. Chapter three details how the research objectives of this study are addressed and Chapter four presents the findings of this study, which are discussed in Chapter five.

## **Chapter 2: Literature Review**

As explained in Chapter 1, this study has two objectives : (1) to analyse the effect of government expenditure on education attainment; and (2) to investigate the effect of education attainment on human development. In order to address these objectives, this chapter is divided into three major parts: The first part will look at the human capital theoretical framework. In this section, different definitions of human capital are discussed. Thereafter, the different ways in which different scholars measured human capital is discussed. The second part of this chapter looks at human capital development in the South African context. The last part looks at literature on education expenditure

H1: There is positive relationship between education attainment and government expenditure on education

### ***2.1 Theoretical Framework Human capital***

#### ***2.1.1 Human Capital Definition***

Human capital is the knowledge and skills that people obtain through education and training being a form of capital, and that this capital is a product of measured investment that produces gains (Schultz, 1961:17). According to Denison (1962:58), theory of human capital as a system of education that impacts to economic growth, not described by increases in capital, labour and productive land to improvements appearing from increased educational levels in the workforce.

The approach of Becker (1962:5) and Mincer (1984:3), whether to undertake education can be seen as an investment or spending decision. In Mincer, the costly attainment of human skills is an act of investment, whereas in Becker the investment in human capital is viewed as activities that influence future real income through the injecting of resources in people. Numerous ways of developing human capital besides schooling, including on the job training, learning by doing or experience and home learning are generally acknowledged in literature (Mincer, 1984:56). As suggested by Becker (1962: 27) an investment decision on human capital can be

assessed in a similar way to that of investment in physical capital where individuals take into consideration the cost (time measured by its opportunity cost plus direct costs such as tuition fees) and the present value of the upcoming stream of rises in wages due to additional schooling during their work life (Becker, 1962:27).

The theory of human capital as a form of investment by individuals in education up to the stage where the earnings in the extra income are equivalent to the expenses of participating in education, (Becker, 1964:78). Earnings are both private to the individual in the form of supplementary income and to the overall society in the form of better productivity provided by the educated, (Becker, 1964:78). Bowman, (1969:70) proposed that the theory of human capital must be in the form of investment coupled with expenses on public services, for example, health and education are related to investment in physical capital, whereas Mincer (1962:50-72) consider the theory of human capital as education and schooling that will train the workforce, this is so important as it will ensure that there is pool of quality educated workforce.

To consider man as a producer, some technique must be found to determine and measure his industrious capabilities. The idea of human capital was initiated into economic analysis to present such an individual's productive skills, talents and knowledge, (Thurow, 1970:48). This is calculated in terms of the value (price multiplied by quantity) of goods and services produced. Since consumption is the essential objective of the economic system, the significance of a man's human capital is the same as the value of the consumption of goods and services which he directly or indirectly produces. When the value of goods and services decreases, the value of human capital decreases too, (Thurow, 1970:52).

Blaug (1976:55) defined human capital as the idea that people spend on themselves in different approaches, for example: by acquiring education and training for not the sake of contemporary satisfactions but for future monetary and non-monetary gains. Individuals and government suffer direct and indirect expenses and a relationship occur between investments in education and individual's lifetime returns.

It is necessary to note that some authors relate to human capital as inarticulable skills required performing their jobs (Blaugh, 1976:827). These inarticulable set of skills are referred to as implicit knowledge. In order to demonstrate the extent to



which implicit knowledge depict the human capital of an organisation, it is useful to consider the organisation as a productive process that obtains tangible and informal inputs from the environment, produces tangible and informal outputs that enter the environment and is characterised internally by a series of flows among network of nodes and links as suggested by (Nelson & Winter, 1982:11).

There are five measures that can be used: compensation revenue, compensation expense factor, compensation factor, executive compensation factor and supervisory compensation factor. (a) The compensation revenue factor metric defines how much was paid to employees as a percentage of sales. This measure shows how if your organisation is getting more or less earnings on every money that it invests in its people. (b) The compensation expense factor metric defines how much was paid to employees as a percentage of overall operating expenses. This measure shows the compensation cost structure of an organisation, (Nelson & Winter, 1982:30). (c) The compensation factor metric measures the average compensation paid to each employee in the organisation. This measure is typically used by Human resources departments to determine the relative standing of salary levels within an industry. The executive compensation factor metric defines how much was paid on average to executives. Executives are described as individuals at higher level. The supervisory compensation factor defines how much was paid on average to supervisors, (Nelson & Winter, 1982:32).

The basic proposal fundamental to human capital models of labour supply is that much wealth, that is stock of something or other, such as health, children, knowledge is embodied in individual people or families cannot be disposed of or sold to others, but can only be acquired at cost, for example, (tuition fees, earnings and leisure time that must be forgone) and produces a flow of services (greater vitality, happiness, productivity in the market or in the income etc..) over the individual's family lifetime, (Killingsworth, 1983:79). Human capital is both a condition and an outcome of economic growth. This is because education activities comprise of both the expression in individuals of available knowledge and the production of new knowledge, (Mincer, 1984:10).

Psacharopoulos (1985:10) regards human capital as a concept or phenomenon developed through investment in education and training. In most cases this results in

increased productivity among employees in the workplace. In the same year Psacharopoulos and Woodhall (1985:16) developed another definition for human capital as investing in both formal and informal education and training, which delivers and enriches individual productivity by providing knowledge, skills and attitudes and motivation necessary for economic and social development.

Looking at various authors defining and describing human capital overtime, it is important to take cognisance of the fact that all of authors take education as a more significant variable. Human capital is also defined as a form of “new growth theory”, which regards knowledge formation as endogenous responding to market motivations such as improved profit opportunities or better education, (Romer, 1986:37).

In 1987, Romer further considered human capital as an extension of the growth theory, which considers knowledge as more endogenous. As pointed out by Romer (1987:56-62) growing returns to organisations are due to investment in human capital through specialisation.

Some authors define human capital in a different manner to the one's stated above, for example, Lucas (1988:22) regards human capital as the knowledge embodied in workers as opposed to pure knowledge or technology or ideas which are disembodied. On the other hand, human capital as the amount of total of human capital that an organisation, country or economy has. The economy with a larger stock of human capital will experience a faster rate of growth, (Romer, 1990:71-102).

From the early 90's there were developments with regard to the manner authors define and understand human capital. Human capital in the form of the fertility model and that there is a relationship between family size and the decision to invest in human capital, therefore societies with small families have invested in human capital and profited from more economic growth, (Becker, Murphy & Taruma, 1990:2-37). Human capital as investment in education and training that has both private and social returns. Schooling and training increase one's productivity and one's chances in a free market to obtain higher wages and certainly increase contribution to the social product, (Cohn & Geske, 1990:12).

Human capital has also been defined as a significant element in advancing a firm assets and employees in order to improve production as well as maintain competitive advantage. Human capital refers to the process that relate to training, education and other professional initiatives in order to increase the levels of knowledge, skills, abilities, values and social assets of an employee which will lead to employee's satisfaction and performance, (Schultz, 1993:13). Firm performance can be measured using perceived performance approach (also known as subjective performance measure) where Likert-like scaling is used to measure firm performance from top management perspective, (Selvarajan,2007:145).

The theory of human investment in an individual's education and training which is similar to business investment in equipment looks at the economic effects of investment in education on employment and earnings and shows how the theory measures the incentives for such investment, (Becker, 1993:9). Human capital also means productive investments in a person such as ability, skills, expertise and health as result of investment towards education training and health care. Human capital growth, mainly in education is one of biggest sources of economic growth both in the past and in times to come.

Human capital although not tangible will always be the most important property of an individual, (Tahir, 1993:86). To measure the development of human capital in education especially in the aspect of population profile, educational development level and other related factors in motivating them to be willing to invest in education as human capital. The human capital quality could be seen mainly via the level of education and training as well as health. Education as a measurement for quantity, availability and human resources quality was the sole method which can be used to analyse the effects of human capital, Benhabib & Spiegel, 1994:69).

On an individual level human capital is considered as the combination of four factors: your genetic inheritance, your education, your experience and your attitudes about life and business. Human capital is also important because it is a source of innovation and strategic renewal, whether it is from brainstorming in a research lab, re-engineering new processes, improving personal skills. The principle of human capital is the sheer of the organisational member, (Hudson, 1993:98). The efficiency of human capital is the dependent component of the conceptual model. The

construct comprises four measures: revenue factor, income factor, expense factor and human capital ROI.

The revenue factor metric is a basic measure of human capital effectiveness and is the collective result of all the drivers of human capital management that inspire employee conduct. The expense factor is calculated by taking the total operating expenses and dividing it by the total head count of the organisation. Income factor is calculated by the total head count of an organisation, Human capital ROI=(revenue-(expenses-compensation)/compensation. This is equal to calculating the value added of investing in the organisation's human assets, (Hudson, 1993:113).

The spending made by individuals and government in acquiring education and training is seen as an investment, in which that investment is expected to produce future monetary and non-monetary returns, (Bontis, 1996:40). Judson (1998:3) describes human capital as the value of education embodied in the labour force. Human capital is an input to productive activities, and for individual's education is an investment. The literature also suggests that there is a relationship between education, trade and growth, growth is positively influenced by trade and education.

Human capital is one of the most important factors in determining the prosperity of a country. Human capital can be measured through the levels of education and training as well as through national levels of health (Ramirez et al.1998:15). Investment in education towards human capital would benefit the individual as well as his country. Ramirez, (1998:21) in his study revealed that population's education will determine their ability to absorb and organise economic growth with good education, technology usage can be utilised at its best.

One author came up with a definition that broadens the concept of human capital to include the attributes one brings to the job: intelligence, fulfilling work energy, a positive attitude, reliability and what is often called 'street smarts' or 'savvy' (how to get things done) (Fitz-Enz 2000:102). Capabilities, knowledge, skills, experience and networking all improve the individual's ability to achieve results and enhance the potential for growth. Individual motivation in the form of aspirations, ambitions and drive increase motivation and productivity. Group work is more effective if there is good support, mutual respect among the workers, and shared values. Leadership, in the form of clarity of vision and the ability to communicate that vision, can create an

organisational climate and culture in which there is the freedom to innovate; and with openness, flexibility and respect for the individual, (Mayo, 2000:1-9). Dorwick (2003:59) argues that human capital lives and dies with particular people; knowledge and ideas do not live and die with their originators. However, the author believes that the production of human capital is a consequence of education, whether formal or informal. The knowledge, skills, competencies and attributes embodied in individuals, which facilitate the creation of personal, social and economic well-being (Organisation for Economic Co-operation and Development, OECD, 2001:169), are developed through education.

Wibisono (2001:12) in his study included variables such as educational attainment (measured by educational level successfully completed), life expectancy and rate of inflation. This study found that the variable contributing most towards economic growth is education.

Human capital has been identified, not only as a major growth factor and a channel to ease poverty, but also as a very important element in building the quality of human beings in general. A study by Mansur et al. (2009:135) found that education provides better opportunities and increases the level of income of an individual. Education is perceived to be an important factor in human capital formation.

Human capital is also regarded at the macro level as the key factor of production in the economy wide production function. From a micro level economic perspective, education increases the probability of being employed in the labour market and improves earnings capacity. Also at the micro level, human capital is considered the component of education that contributes to an individual's labour productivity and earnings while being an important component of firm production, in other words human capital refers to the ability and efficiency of people to transform raw materials into goods and services, and the consensus is that these skills can be learned through the educational system.

Although the conceptual definition of human capital is clear, its measurement is difficult because it is practically impossible to observe individual skill and even harder to design a metric that is comparable across individuals and countries, (Son, 2010:265). In order to measure this, explore the issues on how human capital affect labour productivity and earnings for the workplace, measure the gaps in human

capital attainment across the world. Also assess and measure the gaps in the stock of human capital across the world on how effectively different regions are improving their stocks of human capital and how long will it take for developing countries to catch with the current level of human capital in industrialised countries. Revisit the contribution of human capital to economic growth, proposing a decomposition method to account for employment growth, which is also impacted by human capital growth in total output per worker, (Son, 2010:267)

Several authors including Milton Friedman, Gary Becker and Mincer (1980,129) developed the human capital theory to investigate the gains of education for individuals and society. Friedman suggested that there was no proof that higher education produce social benefits, above the benefits that accumulate to the students themselves. On contrary Friedman hypothesized that higher education can promote 'social unrest and political instability.' Higher education may produce bigger tax revenue, expand savings and investment, and lead to a more entrepreneurial and civil society. It can also a nation's health, contribute to reduced population growth and improve technology, (Milton and Rose, 1980:29).

In the expanded Solow framework education is considered as an independent element of production. The stock of human capital is calculated in a way related to the stock of physical capital. A person years of education is valued at the stock of producing it and all the person years are added up to get the stock.

Increases in the stock of human capital or in any other specific factor of production are presumed to generate less than proportional increases in output since various factors must be joined to get an increase in output. Precisely, a one per cent increase in the stock human capital is presumed to cause less than half a per cent increase in national income, Under Solow framework, the effect of one per cent change in the stock of a factor of production is equivalent to its share in national income, (Milton and Rose: 132).

Growth in the number of workers, without change in the total number of years of education would have an influence lesser than an equivalent proportional increase in the stock of physical capital. But an equal increase in the stock of human capital (person years of education) would have an impact double that size. Other theories of how education influences output suggest the benefit could be larger than this.

Another option of considering human capital as a separate factor of production is to consider the influence of education by thinking education that is not a separate factor of production but improves the productivity of labour. Under this framework an economy with double human capital per worker could generate the same quantity with half as many workers. Uzawa (1965:88) was the first to suggest a model of economic growth with human capital impacts of this type. In his model a one percent increase in the amount of human capital per worker bring about an increase in national income of about two-thirds of a percent. Because one percent points increase in the stock of human capital per worker causes a full percent increase in the effective labour supply, which generates an effect on output equivalent to labour's share income.

As part of theoretical development, Mankiw et al. (1992:407) emphasised the significance of human capital accumulation in the economic growth literature; they constructed an augmented Solow model that includes both human capital accumulation and physical capital accumulation. They then justified their inclusion of human capital in the model by two significant motives, firstly for any given rate of human capital accumulation, higher savings or lower population growth leads to higher level of income and higher level of human capital, because accumulation of physical capital and population growth have greater influence on earnings when accumulation of human capital is taken into consideration. Second, human capital may be associated with saving levels and population growth rates; this would indicate that neglecting human capital accumulation biases the projected coefficients on saving and population growth, (Mankiw et al. 1992:437)

To test augmented Solow model, they included a proxy for human capital accumulation as a descriptive variable. The outcomes established that accumulation of human capital is connected with saving and population growth. As they have anticipated, that including human capital reduces the projected effects of saving and population growth. In this model, the proxy for human capital is the percentage of the population in secondary school. The model was done for three separate samples and human capital appeared considerably in all these samples.

Uzawa's model still devalues the role of education in defining the level of output and growth. The Uzawa model presumes that if we double the amount of physical capital

and human capital per worker, we will nearly double the amount of output; and that each factor will generate a rigid portion of the increase equal to its average share of current output. But many authors have argued that doubling capital inputs more than doubles output, and this may account for unsolved residuals in a Solow-type analysis of the bases of growth. When doubling inputs results in more than doubling of outputs, there it said to be improving earnings to scale.

The definition that this study adopts describes human capital as the knowledge and skills that people obtain through education and training. As a form of capital, this human capital is a product of measured investment that has gains (Schultz, 1961:17).

### 2.1.2 Two types of Human Capital

The first is to use 'human as labour force' correlated to economic added-value that is produced by the input of labour force and other production components such as financial capital, land, machinery labour hours. The other is that human capital can be regarded as the direct investment through education and training. The human capital extensively involves the meaning of 'human as creator' who frames knowledge, skills, competency and experience created by constantly connecting between 'self and environment'.

With noticing the significance of human capital, many nations have tried to efficiently measure their human capital to understand their status. Then; human capital measurement is an essential source in terms of proposing and implementing policies concerning human resources.

Wolf (2002:35) proposes that some indicators can be actually reflected as incomplete indicator to measure the human capital (e.g. proxies such as income and productivity). It is challenging that human capital alone contributes to individual and national economic growth. According to Ashton and Green (1996:12), it is crucial that the relationship between human capital and economic performance should be considered within a social and political framework to accurately measure the human capital.



Financial, human and social capital positively impact' something like individual health' (Blakery, Lochmer & Kawachi, 2002; Veenstra, 2001; Veenstra et al. 2005, Wilson et al. 2004:185).

### 2.1.3 Uses of Human Capital

The traditional approach in labour economics regards human capital as a set of skills that improve worker's efficiency. This is a point of departure for most realistic purposes, but it is helpful to differentiate among complementary ways of thinking of human capital. Below are different approaches by different authors.

The Gardener analysis: According to this approach, we must not think of human capital as unidimensional, because there are many measurements or types of skills. A straightforward version of this approach should give emphasis to mental vs. physical abilities as different skills.

Schultz/Nelson-Phelps analysis: Human capital is viewed mainly as the ability to adapt. According to this approach; human capital is effective in dealing with disequilibrium situations or with situations in which there is a changing environment and workers have to adapt to this.

The Becker analysis: Human capital is directly helpful in the production process. More than that human capital increases a worker's productivity almost in all tasks, even though possibly differentially in different tasks, organisations and situations. In this approach, although the responsibility of human capital in the production process may be complicated, there is a perception in which we can think of it as represented by unidimensional object, like the stock of knowledge skills.

The Bowles-Gintis analysis: human capital is the capability to work in organisations, obey orders, adapt to life in a hierarchical/capitalist society. According to this approach, the key responsibility of schools is to put into individuals the correct ideology and approach towards life.

The Spence analysis: Visible measures of human capital are an indication of ability than characteristics, independently useful in the production process. Despite their disparities, the first three views are entirely related in that human capital will be

valued in the market because it increases a firm's profit. This is straightforward in the Becker and Schultz views but also similar to Gardener view. In many applications, labour economist's view of human capital would be a combination of these approaches. Also the Bowles-Gintis view has similar effects. Firms will pay higher wages to educated workers because these workers will be more useful to the firm as they will follow orders better and will be more consistent members of the firm's hierarchy. The Spence view is different from others, in that observable measures of human capital may be rewarded because they are about some other traits of workers.

#### 2.1.4 Impact of Human Capital

The impact of human capital is largely categorised into three parts, namely: (a) individual. (b) Organisation. (c) Society. In this perspective of individual in the internal labour market, most researchers relate to the possibility of increasing individual income, stemming from individual productivity, (Becker, 1993; Denison, 1962; Schultz, 1961; Schultz, 1971:385-409). Because of this increment of an individual's productivity on human capital, for the objective of increasing organisational profits, most employers prefer high-productive individuals. It is significant that individual mobility escalates owing to the improvement of productivity in the labour market. By the increase of productivity, the high-productive individual is identified as the worker with much possibility to move higher level in the internal market, (Sicherman, 1991; Galore 1990:87).

In the perspective of individual in the external market, an unemployed individual's human capital influences his job-seeking and employment opportunities, (Greider, Denise-Neinhaus & Statham, 1992:8). On the internalised human capital, an individual enjoys the opportunity to access job-related information with high level of human capital and he can easily find the occupational chances compared to others.

With respect to organisation, Lepak & Snell (1999:31-48) propose that the potential of human capital is closely related to essential capabilities and competitiveness of an organisation. Similar to this perspective, Edvison & Malone (1997:53) describe that individual human capital can influence organisational human capital such as collective competencies, organisational routines and company culture.

The social perspective of human capital is the combination of both individual and organisational perspective. McMahon (1999:67) illustrates the possibility of human capital for democracy, human rights and political stability on common consciousness of social constituents. According to Beach (2009:24), human capital can increase social consciousness of constituents within the community. Consequently, the link between human capital and social consciousness is based on a close-inter-relationship resulting in socio-political development, (Alexander, 1996; Grubb & Lazerson, 2004; Sen, 1999:14-39).

### 2.1.5 Measures of Human Capital

#### (a) The Education-based Approach

Unlike usual methods which measure human capital by cost or by yield, the education based approach evaluates human capital by measuring such education output indicators like literacy rates, enrolment rates, dropout rates, repetition rates, and average years of schooling in the population and test scores. The justification for this method is that these indicators are closely linked to investment in education and that (investment) in education is a crucial component in human capital establishment.

Human capital includes more dimensions but education is possibly the most significant component. For individual's human capital can improve well-being not only by opening bigger economic prospects but also through non-market benefits such as improvement in health, nutrition, fertility, upbringing of children, opportunity for self-fulfilment, enjoyment and development of individual capabilities (Haveman and Wolfe, 1984:377).

#### (b) Adult literacy rates

Defined as the amount of the population aged and older who are able to read and write a simple statement on his or her everyday life (UNESCO, 1993:125), adult literacy rates express important data about a country's overall education status. This indicator has been used in early empirical studies that control for human capital in growth equations, including Romer (1989:69) and Azariadas and Drazen 1990:501).

The use of adult literacy as a proxy for human capital disregards the impact of the more advanced skills and knowledge to productivity. As Judson (2002:209) considers literacy rates might be a good proxy for human capital build-up in countries where the population has little education, but not for those with universal primary education.

(c) Gross enrolment ratio

School enrolment ratio measure the number of students registered at a given time to the population of the age group, who according to the national rule should be attending school at that level. Gross enrolment rates take as the numerator the total number of students, irrespective of the age enrolled at the particular level, whereas the enrolment rates only count those students belonging to the designated age group, Gemmel (1996:15).

Studies that consider school enrolment rate as proxies for human capital in augmented growth models include Barro (1991:407), Mankiw et al. (1992:36), Levine and Renelt (1992:942) and Gemmell (1996:9). The use of enrolment rates as human capital variables is substantiated by the idea that the enrolled population represents the flow that adds to the current stock of education to determine the subsequent stocks, that is, enrolment rates measure the current investment in human capital that will be displayed in the stock of human capital in the future.

Enrolment ratios prove poor for the present stock of human capital. School enrolment rates only take part of the constant accumulation of the stock of human capital. Secondly, as Psacharopoulos and Arriagade (1986:141) noted, there is a long time gap between investment in education and additions to the human capital stock, present enrolment rates are not indicators of the schooling level of the current labour force. Thirdly, the detractors also indicated that education of current students may not be fully added to the (future) productive human capital stock because graduates may not participate in the labour force and because investment may somewhat be wasted through grade repetition dropouts.

Fourth, change in the stock of (productive) human capital is the difference between human capital embodied in those who enter and those who pull out from the labour

force, but school enrolment rates take no account of the human capital of the latter. Therefore, school enrolment rates do not exactly reveal future flows of the human capital stock, let alone current flows or the current stock itself. Data on school enrolment in growing developing countries often lack credibility. According to Barro and Lee (1993:363) enrolment data mostly come from annual surveys of educational institutions in each country and the reporters of these data often exaggerate enrolment figures for the sake of their institutions.

This study adopts the Gross Enrolment Ratio (GER) measure for two reasons: Firstly, the measure has been validated by a number of authors including, Barro (1991), Mankiw et al. (1992), Levine and Renelt (1992) and Gemmel (1996). Secondly, the GER statistic is generated by each country for the United Nations to facilitate human capital development comparisons across countries.

#### (d) Average years of schooling

Several weaknesses of adult literacy rates and enrolment rates as proxies for human capital stocks have encouraged researchers to look for a more effective indicator, specifically average years of schooling of the labour force. This measure calculates the accrued educational investment in the existing labour force and presumes that the human capital embodied in the workers are relative to the years of schooling that they have achieved. The number of average years of schooling has numerous advantages over adult literacy rates and school enrolment ratios. First, it is an effective stock measure. Second, by taking into consideration the total amount of formal education obtained by the labour force, years of schooling takes the effective human capital available for economic production. Watchel (1997:193) proves that under some realistic beliefs, the number of schooling years is an accurate measure of educational human capital using the cost-based approach to capital measurement.

#### (e) The Integrated Approach

Recognising that no single approach to human capital measurement is free of inadequacies, some authors have tried to relate various methods in order to develop their strengths while neutralizing their weaknesses. Tao and Stinson (1997:98)

established an integrated approach which determines the well-known problems integral in the cost and income based- methods. The authors observed that investment in human capital regulate the human capital stock, which can be determined by the cost-based method. Human capital in turn regulates earnings for individuals through the income-based approach.

The conventional standard to measure human capital stock has been mainly categorized into three parts: Output, Cost and Income-based approach.

#### (f) Output-based approach

Some economists attempted to measure the stock of human capital utilizing 'school enrolment rates' as a proxy of human capital (Barro, 1991, Barro & Lee, (1993:393). But the method includes a drawback that a student's effectiveness can be recognized after participating in production activities. It is difficult to clearly demonstrate this relationship, because educational attainment is part of regular school education. Romer (1990:19) suggested the ratio between skilled-adults and total adults to measure the stock of human capital in the national economy (e.g. OECD utilises International Adult Literacy Survey (IALS), the ratio between literated and total adults).

Psacharopoulos & Arriagada (1986:189) suggested average years of schooling to measure the stock of human capital. This method included a drawback that an individual's years of schooling can be slightly related to his/her productivity.

#### (g) Cost-based Approach

Cost-based is based on measuring the stock of human capital through summing costs invested for one's human capital. To calculate the invested cost, Kendrick (1976:101) utilised an individual's investment cost considering depreciation, and Jorgenson & Fraumen (1989:65) presented discounted income in the future. But this approach is based on indirectly measuring stock of human, so it is difficult to precisely classify boundary between investment and consumption in the perspective of costs.

#### (h) Income-based Approach

This approach is based on the returns which an individual obtains from a labour market throughout education investment. Mulligan and Sala-i-Martin (1995:87) defines that aggregate human capital is the sum of quality adjustment of each individual's labour force and presents the stock of human capital utilizing an individual's income. But human-unrelated factors can more influence an individual's income. In this sense, this approach rarely presents a complete measurement for human capital. Hanson (2008:35) showed that OECD measure on human capital is closely linked to international comparable statistics considering investment in human capital, quality adjustments and results of education.

### **2.2 Human Capital Development: A South African Context**

The South African government has made notable progress in ensuring and expanding access to education. South Africa has nearly reached the objective of universal access to both primary and secondary education, but a lot still needs to be done to ensure that the remaining pupils between the ages of 7 and 15 not at present attending school receive an education. Various government departments are making sure that the learning needs of young people and adults are met. There have also been achievements in addressing gender equality at almost all education levels. However, the Department of Education agrees that gender equality in adult literacy is still a problem. There is still a lot of work to be done in order to improve adult literacy in South Africa.

Even though there are achievements made in primary and secondary education, the drop-out rates particularly in higher grades of secondary schooling require attention. The drop-out rates in the post-compulsory phase have an impact to youth unemployment because there is a relationship between education attainment and success in the labour market.

The realisation of the objective of quality education and improved learning outcomes remains the challenge facing the education system. This is evident when you look at both local and international assessments that learners are underperforming. Government noted this, and intervened by introducing a five-year plan to improve

teaching and learning but as today we are still waiting to see the results of that intervention.

Regardless of various achievements made in post-secondary schooling, certain interventions are required to improve the skills and knowledge of people aged between 18 and 35. At this point it is also important to acknowledge the efforts by government in assisting people between 18 and 35 by offering internships, work integrated learning and other various means to equip the youth to have necessary and market related experience needed to be competitive and competent in their respective field of areas.

It is of great concern that there is a high number of young people that should be participating in post-secondary studies, but are not, and the majority of those are unemployed. The common reason given by many students for dropping out of education is usually the lack of funding. It is impossible for students from poor families to access higher education because of higher costs. Most students in universities heavily rely on financial aid which make hard for government to support everyone because of budget limitations. This also makes it hard for government to increase the number of African graduates.

Currently there is a commission appointed by the president to investigate whether South Africa can provide free education as demanded by student organisations. The findings of that commission will pave a way forward since the Ministerial Committee appointed by the Minister of Higher Education and Training to review the efficacy of National Student Financial Aid Scheme (NSFAS). Usually having a matric increases your chances of getting formal employment compared to those with less than a matric qualification, and those possessing tertiary qualifications have bigger chances of getting formal employment.

In South Africa, Post-education opportunities should be improved in order to assist students increase their employability chances. Participation rates in higher education are low when compared to international standards, (DHET, 2009:68). The Department of Higher Education and Training (DHET) embarked on a plan to explore possible ways to increase post-school access because of large numbers of youth not in education and not employed. Up to date it is still not clear whether Higher



Education (HE) will be able to expand in the short to medium term because of high costs of higher education.

### 2.2.1 Trends in Education Attainment

This section provides an overview of trends in education attainment because a person's level of education has a direct impact on their life.

#### Early Childhood development, primary and secondary education attainment

The Gross Enrolment Ratio (GER) is used to determine the participation of students in education. The Gross Enrolment Ratio is described as the number of learners, irrespective of age that are registered in a particular school phase, (DoE, 2007:25). From 2002 to 2006, the gross enrolment ratio for male and female learners was more than 100 for the primary phase (Grade 1 to 7), (DoE, 2007:88). The highest GER was 105 in 2002 which declined to 99 for total enrolment in primary education in 2007, (DoE, 2007:124).

In the secondary phase (Grade 8 to 12), the gross enrolment ratio varied between 80 and 91, (DoE, 2009:49). It is clear from the lower GER for secondary schooling that a large number of learners had dropped out of secondary education. The report by Department of Education 'Trends in Education Macro Indicators 2009, (DoE, 2009:63) indicated that participation levels in South African education system is high with 98% of the youth involved in various education programmes. The completion rates up to Grade 7 increased from 88% to 93% between 1995 and 2007 and the completion rate from 75% to 83%, (DoE, 2009:58) The participation in early childhood is believed to be a major investment in improving the success of learners as they proceed with their schooling. The gross enrolment ratio at Grade R increased from 18% in 1994 to 49% in 2007, (DoE, 2009:23).

**Figure 3:** Gross Enrolment Ratio (GER) and Gender Parity Index (GPI) for Grade R to 12 in ordinary school sector by province and gender, 2002 to 2007

Year	Gender	School phases (Gr. 1-12)						School Bands (Gr R-12)					
		GER (%)			GPI			GER (%)			GPI		
		Primary (Gr 1-7)	Secondary phase (Gr 8-12)	Total (Gr 1 -12)	Primary (Gr 1-7)	Secondary phase (Gr 8-12)	Total Gr (1-12)	GET Band (Gr R-9)	FET Band Gr 10-12)	Total (Gr R-12)	GET Band (Gr 9-12)	FET Band (Gr 10-12)	Total (Gr 10-12)
2002	F	103	84	95				96	72	90			
	M	108	78	95				99	64	91			
	Total	105	81	95	0.95	1.07	0.99	97	68	90	0.97	1.13	0.99
2003	F	101	83	93				93	76	89			
	M	106	77	94				96	69	90			
	Total	104	80	94	0.95	1.07	0.99	95	73	90	0.97	1.1	0.99
2004	F	102	93	98				95	88	93			
	M	107	85	98				97	78	93			
	Total	104	89	98	0.96	1.1	1	96	83	93	0.97	1.14	1.01
2005	F	101	92	97				94	88	93			
	M	105	85	97				97	77	93			
	Total	103	89	97	0.96	1.08	1	96	82	93	0.97	1.13	1
2006	F	100	95	98				95	92	94			
	M	104	87	97				97	80	93			
	Total	102	98	98	0.96	1.09	1.01	96	86	94	0.98	1.15	1.01
2007	F	98	92	95				91	93	91			
	M	100	84	94				93	81	90			
	Total	99	88	94	0.98	1.1	1.01	92	86	91	0.98	1.15	1.01

Sources: DoE. 2004, 2005a,2005b,2006,2008a,2008c,2009b and Stats SA 2002,2003b,2004b,2005b,2006c,2007b.

### 2.2.2 Trends in School level drop-outs

From the section above it is evident that South Africa has made progress in increasing access to education. Even though there are achievements being made in providing education to both primary and secondary education, the drop-out rates are still a major challenge. According to the 2007 Community Household Surveys, the percentage of drop-outs of the youth aged between 7 and 15 dropped between 2002 and 2006.

The high dropout rates at Grade 11 seem to occur because of the increase with each successive wave of learners progressing through the education system, (DoE, 2009:132). These high drop-out rates in the post-compulsory schooling can have an impact to youth unemployment, as it was said earlier that there is empirical link between education and labour market. It is important to identify reasons why there is high drop-out of education; this will assist in establishing necessary interventions aimed at supporting the youth facing different challenges to proceed with their education, increase their employability chances and improve their quality of life.

**Figure 4:** Reasons provided by 14-17-year-old for not attending school education/ education institution as a percentage of the total that are not attending any education institution, (2006 General Households Survey).

<b>Reason description</b>	<b>14-17 Year old</b>
Too old/young	1.0%
Has completed school/education	2.7%
School/education institution is too far away	1.3%
No money for fees	34.3%
He/she is working (at home or job)	6.4%
Education is useless or uninteresting	17.7%
Illness	9.5%
Pregnancy	8.1%
Failed exams	5.6%
Got Married	0.7%
Family commitment (child minding etc.)	8.2%
Other/unspecified	4.6%

Source: Stats SA. 2006b

**Figure 5:** Reasons given by 14-17 year olds for not attending school/ education institution by gender as % of total not attending (2006 General Households Survey)

<b>Reason description</b>	<b>Male</b>	<b>Female</b>
Too old/young	1.2.%	0.8%
Has completed school/education	3.2%	2.1%
School/education institution is too far away	0.9%	1.6%
No money for fees	37.5%	31.1%
He/she is working (at home or job)	8.3%	4.6%
Education is useless or uninteresting	22.0%	13.3%
Illness	10.3%	8.7%
Pregnancy (self or partner)	0.2%	16.1%
Failed exams	7.9%	3.3%
Got Married	0.0%	1.4%
Family commitment (child minding etc.)	3.9%	12.5%
Other/unspecified	4.8%	4.5%

Source: Stats S.A. 2006b

### 2.2.3 Trends in Matric Results

There is a study that was conducted by Zuzu, Leibbrandt, Branson (in Cloete, 2009:56) to establish relationship between further studying and access to labour market. It was established that having a matric qualification increases one's chances of getting formal employment compared to those without a matric. Having a tertiary qualification compared to those without matric increases one's chances of finding formal employment three times. Failing to complete secondary education is common especially on African students. The study also revealed evidence that having completed a matric qualification and going to tertiary or university usually increase a person's chances of getting decent employment, (Zuzu, Branson, Leibbrandt, 2009:89).

**Figure 6:** Senior Certificate Examination Results, 2001 to 2007.

Year	Gender	Enrolled in grade 12	Learners who did not write	Candidates who wrote	Candidates failed	without endorsement	with endorsement	Total
2001	Male	100%	4.5%	95.5%	39.9%	45.5%	14.6%	60.1%
	Female	100%	6.5%	93.5%	36.4%	48.0%	15.6%	63.6%
	Total	100%	5.4%	94.6%	38.3%	46.6%	15.1%	61.7%
2002	Male	100%	13.1%	86.9%	28.2%	53.8%	18.0%	71.8%
	Female	100%	12.6%	87.4%	24.9%	55.6%	19.4%	75.1%
	Total	100%	12.9%	87.1%	26.7%	54.6%	18.6%	73.3%
2003	Male	100%	18.6%	81.4%	28.2%	53.8%	18.0%	71.8%
	Female	100%	18.0%	82.0%	24.9%	55.6%	19.4%	75.1%
	Total	100%	18.3%	81.7%	26.7%	54.6%	18.6%	73.3%
2004	Male	100%	18.4%	81.6%	30.5%	52.0%	17.6%	69.5%
	Female	100%	16.9%	83.1%	28.0%	53.1%	18.9%	72.0%
	Total	100%	17.7%	82.3%	29.3%	52.5%	18.2%	70.7%
2005	Male	100%	20.0%	80.0%	32.8%	50.8%	16.4%	67.2%
	Female	100%	17.3%	82.7%	30.3%	51.8%	17.8%	69.7%
	Total	100%	18.8%	81.2%	31.7%	51.3%	17.0%	68.3%
2006	Male	100%	11.4%	88.6%	34.5%	49.9%	15.5%	65.5%
	Female	100%	11.1%	88.9%	32.1%	50.8%	17.1%	67.9%
	Total	100%	11.3%	88.7%	33.4%	50.3%	16.3%	66.6%
2007	Male	100%	5.4%	94.6%	35.5%	49.8%	14.8%	64.5%
	Female	100%	6.5%	93.5%	33.9%	50.5%	15.6%	66.1%
	Total	100%	5.9%	94.1%	34.8%	50.1%	15.1%	65.2%

Source: DoE. 2002,2003,2004,2005a,2005b,2006,2008a,2008c,2009b.

## 2.2.5 Trends in Further Education and Training

Different government departments if not all have developed programmes to address the challenge of learning and skills for the youth. Various SETAS' (Sector Education and Training Authorities) have trained thousands of youth including adults on skills over the past years and they are continuing to play a significant role in addressing the skills shortages in South Africa. However, government has realised that there is still more that needs to be done to improve the work done by SETAs, (DoE, 2009:157).

**Figure 7:** Total enrolment of learners registered as well as the number of educators employed by public FET Colleges in 2005, 2006 and 2007.

Year	2005			2006			2007		
Province	Learners	Educators	Institutions	Learners	Educators	Institutions	Learners	Educators	Institutions
EC	24 500	726	8	30 129	890	8	20 173	837	8
FS	21 315	524	4	14 661	510	3	14 224	400	3
GP	123 216	1 866	8	130 388	1 752	9	94 434	1 927	9
KZN	65 073	1 095	9	65073	1 095	9	77 431	579	9
LP	37 071	555	7	22 908	619	7	17 037	524	7
MP	24 067	265	3	33 778	685	3	36 463	712	3
NW	28 240	379	3	17 743	397	3	14 318	323	3
NC	4 917	168	2	8 959	141	2	10 666	186	2
WC	49 185	329	6	37 547	1 007	6	35 993	499	6
National	377 584	6 407	50	361 186	7 096	50	320 679	5 987	50

Source: DoE.2008a, 2008c, 2009c.

Figure 7 above shows the number of learners registered at FET colleges as well as the number of lecturers employed for the years, 2005, 2006 and 2007. Enrolment in FET colleges declined for the mentioned years from 377 584 to 320 679 in 2007, (DoE, 2009:12). The (DoE, 2009) planned to have 800 000 students registered in NCV programmes by 2014, unfortunately that was not achieved due to infrastructure and additional qualified lecturers needed to achieve this

## Post-Secondary Participation in Education

It is not always easy to determine trends in post-secondary education using DoE and DHET because private and distance provisioning are usually not included in data sets. Expanding budget allocation and opportunities for the South African youth is necessary to enhance their employability. Higher education enrolment rates in South Africa are low compared to international standards. It is of high importance to look at the efficiency of higher education.

**Figure 8:** Higher Education Participation, 2001 to 2009

	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>HE</b>	6272	6671	7052	7447	7350	7413	7608	8177	8347
<b>Erolments</b>	77	82	55	8	73	80	89	31	68
<b>20-24 age</b>	4424	4470	4512	4545	4568	4641	4726	4820	4920
<b>population</b>	722	460	455	546	462	464	110	527	962
<b>GER</b>	14.2	14.9	15.6	16.4	16.1	16.0	16.1	17.0	17.0
	%	%	%	%	%	%	%	%	%
<b>Annual</b>	6.4%	5.7%	5.6%	1.3%	0.9%	2.6%	7.5%	2.1%	
<b>growth rate</b>									
<b>in HE</b>									
<b>enrolment</b>									
<b>% of</b>	1.4%	1.5%	1.5%	1.6%	1.6%	1.6%	1.6%	1.7%	1.6%
<b>population</b>									

Sources: DoE.2009e and Stats S.A.2002,2003b, 2004b,2005b,2006c, 2007b.

### 2.2.6 South Africa's International Experience

South Africa has made considerable progress in offering in offering education and making education accessible to everyone. The country should utilise the Brazilian experience in order to provide hope for its citizens. Brazil, a society that is symbolised by great disparity, and a population that is four times the size of South Africa, political governance made a big transformation to education. Former president of Brazil Fernando Cardoso organised public sentiment and political desire through the country. The president introduced rewards for best performing teachers, outcomes for delivery failures and focused on student performance. This helped the country moved from being 'bottom of the world class 'to the world's fastest reforming schooling system', (Coughlan, 2012:82).

Another useful experience that South Africa needs to consider is from Ghana. The message that the country can learn from Ghana is that achieving education restructurings require administrative and leadership stability, coupled with a sense of urgency and political dedication from the top. Looking at the impression of the most African as well as other developing country's experiences, brief suggestion on why education systems in developing countries are not prospering. Money is largely available but it is disproportionately distributed, both geographically and among income and racial groups.

On top of that, the funding 'leaks', in most cases 20 to 50 per cent of the money get to schools because of corruption. Educator absenteeism and substantial loss of time are key contributors to the failure of the system and learner performance. Expenditure is not linked with the results; evidence demonstrates that there is a large inconsistency between test scores and public education spend in most countries. South Africa is an example, performing poorly in international tests and spending 5 to 6 on GDP on education, (OECD, 2011:17).

The key to enhancing education in the African continent is to toughen responsibility in case of schools. Three levels of interferences should be implemented :( a) information). (b) school- based management and (c) teacher incentives. In developing these interventions, it must be ensured that the parents, communities and those closest to learners must be empowered, (OECD, 2012a:21). It is also good that our president like the former president of Brazil is playing a vital role in restructuring our education system, as he said 'we need teachers in class, on time and teaching'. South Africa requires brave political leadership and a new social compact on quality schooling, we need better results. According to the Director-General of Basic Education, South Africans need to understand that the school is the point at which we convert inputs to outputs, 'If we don't do that, we are not going to succeed, (DOE, 2013:178).

#### 2.2.7 How to make investment in education pay

Empirical analysis produced by the OECD (2013:63) points to improved employability and high private returns on tertiary education and high school graduation (completing matric). However, returns are lower for the African population compared to Whites. A large part of this gap reflects discrepancies in the quality of



schooling, as calculated by pupil-teacher ratios. Improving the standard of education would help to lower income imbalances and increase private as well as social earnings from education.

The unemployment rate among the youth is, at least partly, due to skills shortages among those who fail to complete matric. It can therefore be said that vocational education and training systems are underdeveloped and do not operate as an alternative for those who drop-out of high school. Further Education and Training (FET) Colleges serve a very small portion of the students registered at secondary schools, but display the highest pupil-teacher ratios in the education system. Usually students in vocational education are believed to be of inferior quality. Successful vocational education and training systems in OECD countries normally offer up-to-date syllabi which are in line with the needs of the labour market. This provides immediate access to the labour market. They can also offer a route to higher education, which in turn raises the quality of new participants.

It is important to raise the demand for and the supply of skilled students with vocational or FET certificates. From the demands part, there is still a lot of work to be done on-the-job training for FET students, regardless of measures taken in this area. On the supply side, the VET side is failing to produce the skills that are required as its curriculum is regarded as being outdated, and also deficiencies in the quality of lecturers and infrastructure. Fostering partnerships with large companies, public entities and public or private FET colleges is an effective way of building the quality of the system.

To support this initiative, it is necessary to expand the bursary schemes in well-defined segments of the VET system, like those linked to booming economic sectors would help raise the quality of applicants, at the same realising strategic skills development needs for the country, (DHET, 2013:203). Re-establishing an efficient apprenticeship was an explicit goal of the New Growth Path which planned for training of 50 000 additional artisans by 2014-2015.

Employers should only be attracted by having a pool of privileged access to tailor-skilled graduates, not by the availability of cheap labour during the apprentice programme which usually takes two to three years, (OECD, 2012:23).

### **2.3 Conceptual framework**

A study that was conducted in Nigeria to investigate the correlation between government expenditure in the education sector and economic growth 1986 to 2011. The outcomes indicate that long run connection occurs between the variables. The econometric outcomes showed that a one-year lag of gross domestic product, existing level of recurring expenditure on education, two year lags of recurring expenditure on education as well as two lags of gross capital formation demonstrate positive influence on economic growth. On the other hand, preceding year spending on education and human capital development has negative and substantial effect on economic growth within that period, 1986-2011. The research suggested developments in government spending in education particularly on the capital element in order to enhance economic growth.

The relationship between government expenditure in education has continued to make series of arguments among researchers. Nigeria has the capability to develop a successful economy, decrease poverty considerably, and deliver education, health and infrastructural facilities that people need. Regardless of the country's relative oil resources, poverty is prevalent and Nigeria's basic social statistics put it among the twenty poorest countries in the world, (World Bank, 2004:91). Even though occurrences of poverty in Nigeria are higher in rural areas compared to urban areas, the urban slum-dwellers create one of the more underprivileged groups in Nigeria.

The poor are those who cannot get a satisfactory income, find a secure job, sustain a healthy living condition or own property. They also lack sufficient level of education and are unable fulfil their basic needs. Normally, the poor are uneducated, in poor health and have a short life span, (Amaghionyeodiwe and Osinubi, 2004:19). A good technique of creating economic growth and upgrading shortages in the country is through educational development. The basic significance of education is to allow persons with knowledge and ability to utilise that knowledge. Education is then considered as the most direct way to salvage considerable number of people out of poverty, because there is likely to be more employment opportunities and higher wages for skilled workers. But public expenditure on education has been low, being only 0.9 percent of the GNP, (World Bank, 2004:258).

### 2.3.1 Education and Human Capital

Education and human capital are closely related terms and cannot be separated; in fact, the primary idea of human capital is education. Education is the key investment (Bell & Stevenson, 2006:34). Human capital that is shaped by good education is able to improve an individual income (Pettrakis, 2012:78). Education as an important element in human capital inspires many countries to prioritise education because it has positive impact on improving the nation's income (Santos, 2011, Surinach & Artis 2012:25-47). The lack of productivity is usually caused by human resources that do not have sufficient skills, knowledge and experience. South like other countries has reformed their education system in order to produce better human resources.

Education produces qualified people with skills and be competitive in the work environment. Education also contributes to social linkage, morality, intellectuality as well as experience (Haynes & Amarapurkar, 2009:98). These elements mentioned are the main requirements for working in any organisation.

### 2.3.2 Educational Finance and Human Capital

Money is invested in education because it is perceived to have value, in other words education is financed or funded. Usually that funding comes from government. Carneiro and Heckman (2003:107) stated that the main characteristic of human capital is the knowledge and skill obtained through education; and it needs to be funded and subsidised. Human capital is supported by government through financing. Many nations have reformed their education systems to improve the quality of education (Benfield, 2010:32). Other studies have shown that many nations are failing to reform their education systems due to budget constraints, corruption and gaps in financing.

The case of South Africa is different because government is constantly increasing the budget allocations to education from primary schools up to university level, but the results are not seen. In fact, the South African government has prioritised education.

The financing of education requires an effective and systematic model that would emphasise equality and ensure adequacy (Bougroum & Ibourk, 2011:115). There are two ways through which education can be financed: micro and macro finance;

which are based the number of students and student costs (McMahon & Boediono, 2001:67).

### 2.3.3 Quality of Education

Researchers who attempted to estimate the effect of the quality of education on student's capital outcomes typically used measures of resources as a substitute for the unobservable quality variable. Measures of resources usually include pupil/teacher ratios, class size, teacher salary and per pupil funding, (Catterall, 1997). The process by which inputs are combined is likely to be at least as important as the level and the type of the resource. Process may include factors such as the following:

- Whether the teacher has a clear purpose of what is to be accomplished with the class.
- Whether there are explicit pupil achievement standards.
- Whether the standards are high, clear and rigorous.
- Whether the classroom and school provides a supportive atmosphere.
- Which teaching techniques are used?
- The degree of decentralization in school management and expenditure control.

With regard to the effect of educational resources on test scores, the evidence is mixed. Most authors do find a positive effect from increased resources on future earnings. The paradox that academic achievement is relatively unaffected whereas earnings are affected is usually explained by asserting that test scores are only a narrow measure of the human capital (work and social skills) that formal education provides and gain, which are desired in the labour market (Card and Krueger, 1992:151).

### 2.3.4 Conceptual framework of Public Expenditure in Education

The concept of human capital relates to the abilities and skills of human resources of a country, while human capital formation relates to the process of securing and improving the number of people who have education, skills and expertise that are essential for economic growth and development of a country, (Okojie, 1995:44). This

process can only be achieved through spending on education. Human resources are all embracing; it comprises of people who work now, or who are likely to be employed sooner or later. This is an on-going process from childhood to old age, and a requirement for any society that hopes to survive under difficult challenges of a dynamic world, (Adebiji, 2005:70).

Empirically, Haous and Yagoubi (2005:461) investigated openness and human capital as foundations of productivity growth for countries. They discovered that while human capital extensively affects growth, it has no fundamental influence on productivity growth. Loening (2002:188) examined the effect of human capital on economic in Guatemala through the application of an error correction methodology. He tested two different channels by which human capital is anticipated to impact growth. The outcomes from the research showed that a better educated labour force seems to have a positive and significant influence on economic growth via factor accumulations as well as on the development of total factor productivity.

Oluwatobi and Ogunrinola (2011:57) assess the influence of government recurrent and capital spending on education in Nigeria and their impact on economic growth. The study adopted the augmented Solow model and real output as dependable variable while the explanatory variables are government capital and current expenditures on education, health and labour force. The results of the study show that a positive relationship exists between government recurrent expenditure on human capital development and the level of real output, while capital expenditure is negatively related to the level of real output.

## **Conclusion**

It is clear from the literature above that education is significant in building human capital. The study adopted Schultz's theory of human capital (1961), which defines human capital as the knowledge as well as skills which people get from participating in education and training programmes as a form of capital, that capital is a product of investment that bring returns.

Trends in education attainment covering all phases were discussed in order to find the main sources of the problem and measures that can be implemented to address

these. The literature suggests that the most significant investment that a country can make is in its people. Education has instrumental value in creating societies that are better and able to respond to challenges of a dynamic world.

Investment in education is crucial to the country's development progress through increasing productivity, skills and efficiency in human capital. All efforts by the government to provide facilities to better education infrastructure as well as financial assistance are wise, because human capital development relies heavily on investment on physical and IT infrastructure, space, and investment on competencies to provide training.

## Chapter 3

### 3.1 Research Methodology

The foregoing chapter reviewed literature on human capital and government expenditure to establish the conceptual domain of the hypothesis of this study (H0: there is positive relationship between human capital development and government expenditure on education). Gross enrolment rate (GER) was found to be the most appropriate method of measuring human capital development (see for example, Barro, 1991; Mankiw *et al*, 1992; Levine and Renelt, 1992; and Gemmel, 1996).

This chapter's main purpose is to first describe the variables of the study, then specify an ordinary least squares (OLS) regression as well as an error correction model that looks at the relationship between human capital and government expenditure. Secondly, this chapter presents the variables in the error correction model (ECM), then discusses how the model was specified and how it was estimated. As will be explained later, this study is based on secondary data collected by Statistics South Africa and sourced from government databases. The analytical technique used to test the hypothesis is discussed, and this is followed by a discussion on reliability and validity issues.

### 3.2 Variables

The study has two variables: (1) Education attainment (human capital development)<sup>1</sup> measured using gross enrolment rate at secondary school level (GER) which is the dependent variable and government spending on education (independent variable). This study predicts that government expenditure on education will have an impact on human capital development (education attainment).

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<sup>1</sup> The term human capital and education attainment will be used interchangeably

**Figure 9: Variables, Data Source**

Variable Name	How Variable is Measured	Data Source
Education attainment	GER	World Bank Database
Government expenditure on education	Rands	Reserve Bank of South Africa

### 3.3 Data and Model Specification and Estimation

The objective of this study is to evaluate the impact of government expenditure on education attainment in South Africa. To empirically examine the relationship between these two variables this study adopts the Error Correction Model. Time series data from 1998-2015 was collected from the World Bank Database as well as from the Reserve Bank of South Africa.

To test the hypothesis that there is a positive relationship between human capital and government expenditure, the study specifies a model of this nature:

$$Y_i = \alpha + \beta x_i + \varepsilon_i \quad (1)$$

Y= human capital measured using GER. Y is determined by the structural component alpha ( $\alpha$ ) + beta ( $\beta$ )\* $x_i$

X = government expenditure (secondary education)

$\alpha$  = intercept

$\varepsilon$  = error term

ECM estimates the speed at which a dependent variable Y returns to equilibrium after a change in an independent variable X. The basic structure of an ECM is as follows:

$$\Delta Y_t = a + b\Delta X_{t-1} + b(EC)_{t-1} + e_t \quad (2)$$

Where EC is the error correction component of the model, and measures the speed at which prior deviations from equilibrium are correlated, and  $e_t$  measures the error term (Brooks, 2008). In the Engle and Granger Two-Step Method the EC component is derived from cointegrated time series (Z).



$$\Delta Y_t = b_0 \Delta X_{t-1} - b_1 Z_{t-1} \quad (3)$$

$b_0$  captures the short term effects of X in the prior period on Y in the current period.

$b_1$  captures the rate at which the system Y adjusts to the equilibrium state after a shock. In other words, it captures the speed of error correction.

To prevent the use of non-stationary data Unit Root test (Augmented-Dickey-Fuller (ADF) test) was carried out to test for stationarity of the variables in the equation.

### **3.4 Delimitations and Assumptions**

It was expected that the human capital and the government expenditure series were stationary so that data could be modelled in their levels using ordinary least squares estimation. It was also expected that all series would be integrated of the same order I(1); and that they would be cointegrated, thus allowing two types of models to be estimated: (i) an ordinary least squares regression model using the levels of the data, thus providing the long-run equilibrating relationship between human capital and government expenditure; (ii) an error correction model estimated using ordinary least squares. The error correction model represented the short-run dynamics of the relationship between human capital and government expenditure.

### **3.5 Ethical Considerations**

This study used secondary data supplied by the Statistic Agency of the Republic of South Africa, Statistics South Africa, meaning that data was not collected from primary sources. Statistics South Africa (Stats SA) is a public entity responsible for collection and dissemination of official statistics, with a central role of ensuring credibility, accuracy and quality of data. Because Stats South Africa data is freely available in the public domain this study had neither confidentiality issues nor informed consent to contend with.

### 3.6 Reliability and Validity

According to Joppe (2000:11) reliability refers to the extent to which results are reliable over time and exact representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. Kirk and Miller (1986:98) recognize three types of reliability to in both qualitative as well as in quantitative research relate to the following:

- a) The extent to which a measurement remains the same.
- b) The constancy of a measurement over time.
- c) The similarity of measurements within a given period of time.

External validity is a property that allows the research findings to be generalised to a large population. External validity is a concern when constructing experimental and non-experimental (observational) research design. Researchers need to ensure external validity through careful construction of their research design (Heather, 1984). There are three main threats to external validity: Non-representative samples, an artificial laboratory environment and testing effects. Iyenda, Kinders, and Peters (2001:85) state that researchers increase the external validity of their studies by being mindful of the threats when creating their research design. Frankfort and Nachmias (2000) explained that researchers must to be careful of the trade-off between external validity and internal validity when constructing research design. This study was based on metric data available in databases located in the Department of Education, and in the Reserve Bank South Africa. Data from these public entities was provided by Statistics South Africa. Because Stats South Africa's data conforms to the criteria prescribed by the South African Statistical Quality Assessment Framework (SASQAF), data used for this study and instruments used to measure the variables were deemed reliable.

### **3. 7 Concluding Remarks**

Secondary data collected by Statistics South Africa and sourced by government databases have been used to test the hypothesis that government spending on education have positive relationship to education attainment. Ordinary least squares (OLS) regression and error correction (ECM) was described and justified. Gross Enrolment Ratio (GER) is found to be the appropriate method for measuring human capital.

## **Chapter 4: Findings**

### 4.0 Introduction

As explained in Chapter 3, this dissertation examines the relationship between two variables: (1) human capital development measured using gross enrolment ratio; and (2) government expenditure on education. Using the deductive approach as explained in Chapter 3, this study tests the hypothesis that: there is a positive relationship between human capital development and government expenditure on education. To test this hypothesis, it was important to first establish whether the data was stationary because the study was based on time series data. To do so, an Augmented Dickey Fuller (ADF) unit root test was performed on two variables of the study. Once the stationarity of the data was established a modified ordinary least squares (OLS) regression was performed to test the hypothesis of the study.

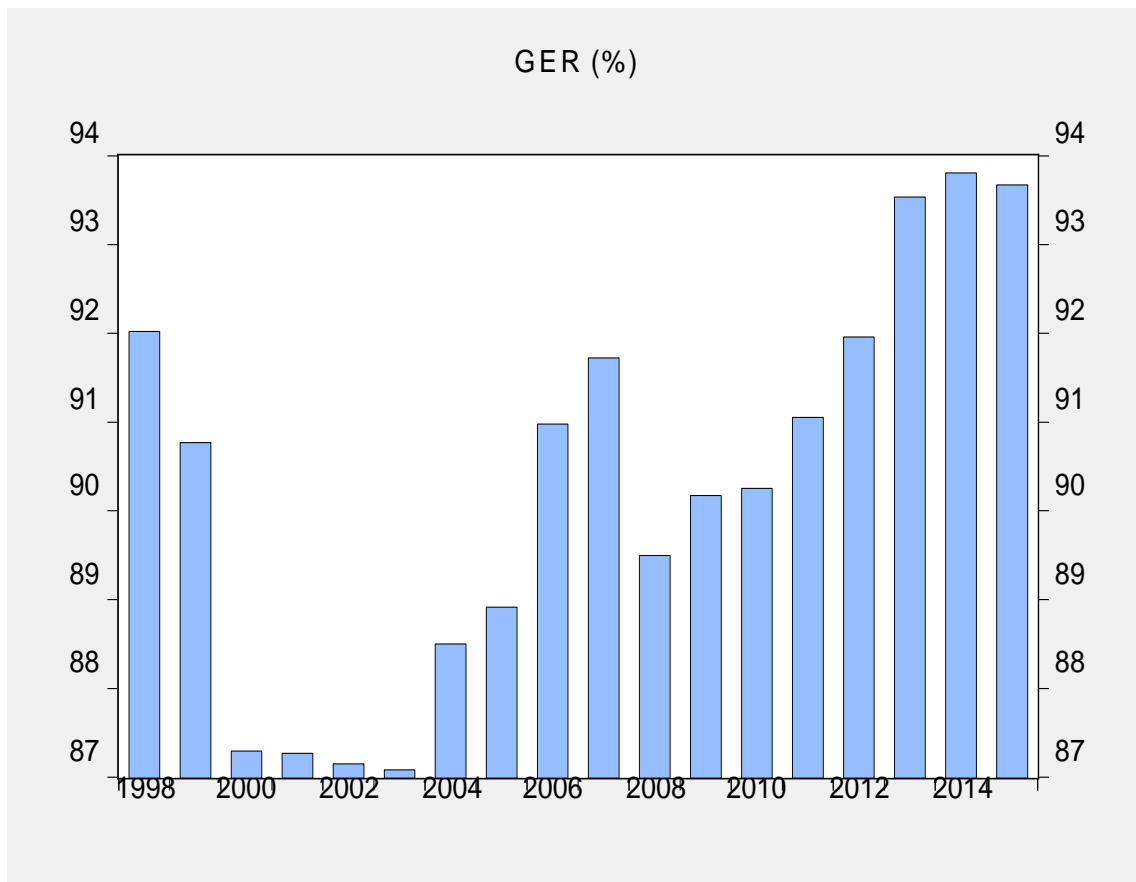
In presenting the findings of these various tests, this chapter is structured as follows: the first part provides a graphical presentation of the time series data followed by descriptive statistical test presentation. Thereafter unit root test findings are presented for gross education ratio and for government expenditure time series. The third part of this chapter presents the ordinary least squares outputs. The final part of this chapter looks at validity and reliability issues of the findings.

### 4.1 Descriptive Statistics of Study Variables

#### 4.1.1 Gross Enrolment Ratio

This study used Gross enrolment ratio (GER) at secondary school level to measure human capital development. Gross enrolment ratio in the context of this study captures the proportion of secondary school group in relation to the total population of those who are categorised on the basis of age to be at secondary school level.

**Figure 10: An illustration of the GER time series from 1998-2015**



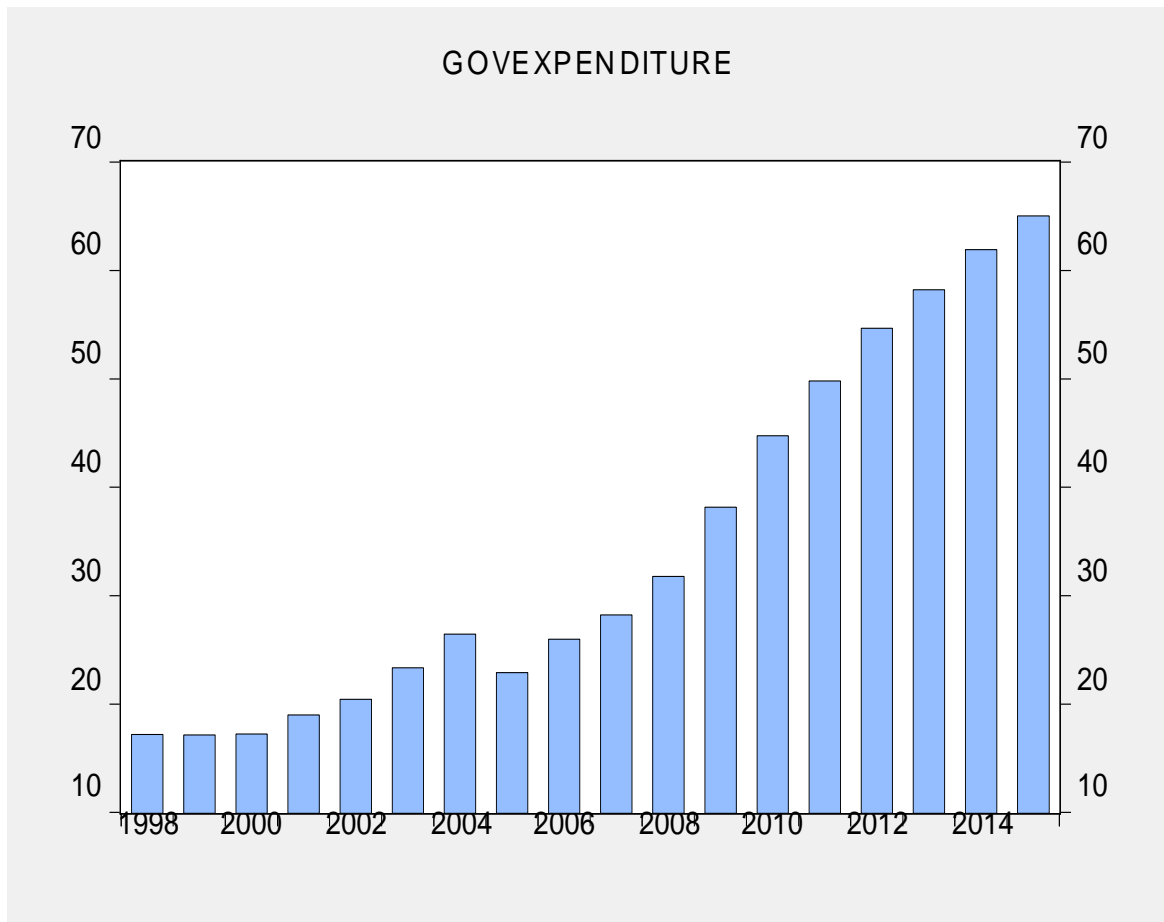
#### 4.1.2 Government Expenditure on Education

Government expenditure on education is measured in R billions of Rands.

Figure 4.2 below shows a steady increase in government expenditure from 1998 – 2004 and a slight dip in 2005. Government expenditure on education increased again steadily from 2006 to R65 billion in 2015.

Time series data presented in Figure 10 shows that gross expenditure on education data does not form a particular trend. Based on the visual presentation of the series it cannot be confirmed that the data is stationary, especially because the data points are few (1998-2015).

**Figure 11: An illustration of the government expenditure time series from 1998-2015**



Time series data in figure XXX shows a definitive trend, which suggest that the data may be non-stationary. The unit root test will confirm this notion.

#### 4.1.3 Mean and Median of study variables

The average gross enrolment ratio at secondary level over the 18-year period between 1998 and 2015 is 90.3%. Table 4.1 shows that the minimum GER over the time period is 97, 1, while the maximum value is 93, 8. Table 4.1 also shows that the mean value of government expenditure over the 18-year period between 1998 and 2015 is R34, 6 billion, with R 17, 1 billion being the lowest amount and R65 billion the highest amount spent per year (2015).

Table 4.1: Mean and median of the study variables

Descriptive statistic	GER %	Government Expenditure on Education (R billion_
Mean	90,3	34,6
Median	90,5	27,3
Minimum	87,1	17,1
Maximum	93,8	65,0

#### 4.2 Unit Root Test

The unit root test is used to test for the stationarity of the data. The Augmented Dickey Fuller test (ADF) tests the t value against the critical values. If stationary the ADF is greater than the critical values at 1% or 5%. The null hypothesis is that the exogenous variables have a unit root and is non-stationary -5. The rejection of the null hypothesis for ADF test is based on the Mackinnon (1996) critical values and p-values 5%. The unit root test, test the following Null Hypothesis;

H01: GER has a unit root

H02: Government expenditure has a unit root

**TABLE 4.2: UNIT ROOT: IN LEVEL SERIES**

	<b>In level series</b>		
Variable	<b>Augmented Dickey Fuller Test (ADF)</b>	<b>P value</b>	<b>Critical Value</b>
<b>GER</b>	-0.88	0.392	-3,89
<b>Government Expenditure</b>	2,01	0.06	-3,88

The results in Table 4.2 show that the null hypothesis of unit root cannot be rejected for both GER and government expenditure in level, which means that, in level series for these two study variables yielded stationary variables ( $p < 0.005$ ).

### 4.3 Testing the study hypothesis

This study tests the hypothesis that there is a positive relationship between human capital development and government expenditure on education. Ordinary Least Squares (OLS) regression is used to test the hypothesis. The Least Squares in a regression model are used to determine the relationship and the strength of the relationship. R-Squared is used to determine model parsimony. The +/- sign of beta coefficients indicates the direction of the relationship.

**Table 4.3.1: OLS Regression test**

Dependent Variable: Gross enrolment ratio

Method: Fully Modified Least Squares

Variable	Coefficient	Std Error	t-Statistic	Prob
Government expenditure	0.121	0.0235	4,879	0,000
R-squared	0,68			
Adjusted R-squared	0,659			
SE of regression	1,3399			
Long-run variance	2,754			

The findings of the study show a strong and significant relationship between government expenditure and gross enrolment ratio at 99% confidence interval ( $p < 0,0001$ ). With the beta coefficient of 2,156 (see table above) the equation representation is as follows:

$$\text{GER} = 2.156 * \text{Government expenditure}$$

As predicted the direction of the relationship between human capital development and government expenditure is positive, thus confirm the hypothesis that there human capital development is positively associated to government expenditure on education.



## **Conclusion**

This chapter presented the descriptive statistics of the two variables of this study (human capital development and government expenditure); the unit root test results; as well as the ordinary least squares outputs in relation to the hypothesis of the study: that there is a positive relationship between human capital development and government expenditure on education. Firstly, the results showed that the null hypothesis of unit root cannot be rejected for both GER and government expenditure in level, indicating that both study variables are stationary, in level. With the stationary data in place modified OLS regression was performed. The OLS findings confirmed the hypothesis that there is a positive relationship between human capital development and government expenditure. The implications of these findings are discussed in the next chapter.

## **Chapter 5: Discussion and Conclusion**

### **5.1. Introduction**

The objective of the study was to investigate the effects of government expenditure on human capital development (education attainment). This was done by assessing whether more government expenditure contributes to improved education outcomes. Education overtime has been defined as the highest level of educational qualification that an individual has successfully completed (Schneider, 2011:29). Educational qualification can be in two forms, it can either be vocational or academic, and is usually measured by the number of years of schooling completed. Gross Enrolment Ratio has been identified as the most appropriate measure of human capital for the study. However, other scholars have used Grade 12 figures and graduation statistics to measure education attainment.

In order to achieve the primary objective of the study and address the hypothesis, secondary data was used. Ordinary Least Square (OLS) regression and Error Correction Model (ECM) was described and justified. The results showed that the null hypothesis of unit root cannot be rejected for both GER and government expenditure in level, indicating that both study variables are stationary in level. The OLS findings confirmed the hypothesis that there is a positive relationship between human capital development and government expenditure.

The research draws from human capital development as explained by the World Economic Forum Report on human capital. According to the World Economic Forum (2013:268), human capital is defined as the stock of competencies, skills, knowledge, social and personal attributes including creativity embodied in the ability to perform so as to produce economic value. Matric enrolment figures, graduation rates, education attainment are some of the indicators used to measure human capital development.

According to Hammond (2011:88) in order to improve national productivity levels and for the country to compete successful internationally, there is a need to develop the country's skills set optimally. The gaps can be identified in the literature is that some studies, such as the one developed by Henken (2010) use graduation results to

measure education attainment, this measure does not validate competence and skills developed by an individual.

In chapter one, the purpose of the study defined as well as research problems and aims clarified. This was done to highlight that the research intended to establish whether there is a relationship between government expenditure and human capital development. Chapter looked at human capital theoretical framework, different definitions of human capital were discussed and also different ways in which different scholars measured human capital. Another section of this chapter looked at human capital development in the South African context.

The fundamental purpose of chapter three was to describe the variables of the study and specify an Ordinary Least Square (OLS) regression as well as an Error Correction Model (ECM) that looks at the relationship between human capital development and government expenditure. Variables were presented in the error correction model (ECM). In chapter four the findings of the various tests done in chapter three are presented. The first part provided a graphical presentation of the time series data followed by descriptive statistical test presentation. The unit root test findings are presented for gross enrolment ratio and for government expenditure time series.

The last chapter which is chapter five reiterated the objective of the study. This chapter summarises the overall study and gives policy recommendations based on the findings, and offer suggestions for future research studies.

## **5. 2: Discussion and Conclusion about the Descriptive features of the variables**

The mean GER over the period is 90,3% whilst the government expenditure on education has averaged R34,6 over the same period. The GER of 90,3% means that there are almost 10% of candidates who completed high school. The maximum GER has been 93,8% over the period study meaning South Africa has never achieved full enrolment of high school students. The minimum GER% has been 87,1% whilst the maximum is 93,8%. Expenditure in education has a minimum of R17,1 billion and maximum of R65 with a range R49,9 billion. There has been significant increase in education spending without corresponding increase in GER. The median GER is

90,5% meaning half the period GER is above 90,5% and also half the time GER is below 90,5%. The median government expenditure in education is R27,3 billion implying half the time government expenditure on education was below R27,3 billion and half the period government expenditure was above R27,3 billion.

Based on the above section, it is concerning that the increase in the amount spent by government on education is not supported by the enrolment figures. One would expect that as government invest more funds on human capital development, more people will be enrolled and complete a certain level of education.

### **5.3: Conclusion about the research question of the study:**

The findings of the study showed that there is a positive relationship between human capital development and government expenditure. These findings showed a strong relationship between government expenditure and gross enrolment ratio at 99 % confidence interval ( $p < 0,0001$ ). The theory of human capital is thus confirmed with these findings. According to Schultz (1993:66), human capital refers to the knowledge and skills that people obtain through education and training being a form of capital and that this capital is a product of measured investment that has gains.

A study was conducted in Nigeria to investigate the relationship between government expenditure and the education sector from 1986-2011. The findings of the study showed that there is a connection between these variables. The findings presented confirm the results of the World Bank that developing countries tend to spend more on education.

In human capital development, education attainment is significant. Education is concerned with the development of an individual as a whole, and include intellectual and character development, just to mention a few. In other words, it is the human resources for every nation, rather than its physical capital and material resources. It is clear that a country that fails to develop the skills and knowledge of its people and use them effectively will not be able to develop anything. Education plays an integral role for social development.

Developing countries, in different ways have attempted to stimulate the accumulation of human capital through public education expenditure. This has been tested in countries such as India (Chandra, 2010), Pakistan (Aziz, Khan and Aziz, 2008) and

Nigeria (Ogujiuba and Adeniyi, 2004). The findings from the above mentioned studies indicate that government expenditure on education do affect human capital development. According to Blondal et al. (2002:17) in many nations, years of schooling minimises the risk of unemployment and the employment rate among those with tertiary education attainment is higher than among groups with lower levels of education.

#### **5.4: Implications of the Findings to Practice**

The findings of the research outline various set of policy implications for human capital development. Among these is the need for better management of finances by executive authority. Provincial and district education offices should have adequate human resources capacity and training in financial management to be effective custodians of the education system in South Africa.

The research also showed that government spending on teaching and learning is essential. Therefore, it is a necessary policy decision to make sure that teaching and learning materials are provided for schools according to their needs. Schools in urban areas will have different needs compared to those situated in rural areas. It is also worth noting that increasing budget allocations for higher education through (NSFAS) National Student Financial Aid Scheme will not improve education attainment in South Africa, if the same approach is not applied to primary and secondary education. Therefore, policy makers should investment in stages of education and especially in early child development stages. It is further revealed in the study that the fundamental factor related with repetition and dropout rates are deeply rooted in poverty levels.

Another policy recommendation is that the public and private sector must work together to robustly support investment as to expand tertiary enrolment rates. It is good to note that the Department of Higher Education and Training (DHET) has made considerable efforts to increase funds via NSFAS, and supported universities and colleges in expanding lecture rooms and building laboratories. As at January 2015, there were 204 000 spaces available at universities, this recorded an increase from 2013 which was 170 000, (Bozzoli, 2015:4). In 2013 approximately, 172 000

graduates obtained bachelor's degrees, whereas in 2014 was about 150 000. Despite these extraordinary achievements by NSFAS, many students do not have resources to fund their studies, therefore, there is still more that needs to be done assist the poor (Bozzoli, 2015:3).

Jansen (2015:7) and Van Jaarsveld (2015:5) believed that inferior education influences both the quality and quantity of candidates who can acquire tertiary qualifications and university admission. Poor education also influences the level of job complexity that a South African matriculants can handle compared against foreign counterparts. They also argued that a solution does not lie with projecting more resources to the problem but can be solved through a societal commitment. Learners should commit in doing what it takes to understand the material. Teachers should commit to showing up at school and use the time allocated to teaching the material and ensuring that learners understand it.

#### **5.5: Study Limitations and Avenues for Further Research**

This research had a number of limitations. Firstly, it does not seek to explain all fundamental elements that determine human capital development (education attainment). It mainly focuses on establishing whether there is a relationship between government expenditure on education and education attainment (human capital development). The OLS regression confirmed the hypothesis that there is a positive relationship between human capital development and government expenditure. Future research must to explore beyond this relationship. The fact is that learners with various backgrounds react to school environments in various ways. Therefore, it is vital that budget allocation is structured according to the needs of that geographical location. Other aspects that still needs to be explored further include language barriers, nutrition schemes that cater for underprivileged learners at schools and the age at which learners start attending school, to name a few.

The research would have strongly benefited from financial information from provincial officials. This information was not accessible as officials argued that they do not have authority to release such data. This is regarded as a limitation

because provinces are given authority by the national government to structure their own budget. It would therefore be useful for future studies to look at how provinces break down the budget to accommodate their needs as allocated by national government.

Further studies ought to look for factors which lead to education attainment not improve drastically as compared to the increase in investment to human capital development made by the government of South Africa.

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