

Department of Economics University of Stellenbosch

Education and Economic Growth in Namibia

By

Erwin Naimhwaka



Assignment presented in partial fulfilment of the requirement for the degree of Masters of Economic at the University of Stellenbosch

Supervisor: Dr. A.P. De Villiers

December 2003

Declaration

I, the undersigned, hereby declare that the work contained in this assignment is my original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Date... 05 - 11 - 2003

Acknowledgements

I would like to express my sincere thanks to individuals and institutions, whose contribution made it possible to complete this paper. Let me start by thanking my supervisor, Dr. Pierre de Villiers, a senior lecturer at the University of Stellenbosch, who helped me from the proposal stage of this assignment up until completion. His comments and suggestions were very valuable and enriching. Thanks are extended to Dr. Tekaligne Godana, a training coordinator with the Namibian Economic Policy Research Unit (NEPRU) for sharing information and data. I acknowledge and extend my thanks to Daisy Mbazima and Rehabeam Shilimela for their assistance in collecting information and data used in this assignment. Thanks are extended to my sponsoring institution NEPRU for having made it possible financially for me to undertake studying for a Master's degree. I extended my profound gratitude to my lecturers in the Department of Economics at the University of Stellenbosch for having equipped me with the relevant economic theory and analytical tools.

My special thanks is extended to my family for their support and encouragement. Thanks are extended to my all my friends for supporting me morally throughout. Last, but not least, I thank God the Almighty for making everything possible.

Table of contents

Declaration.....	i
Acknowledgements	ii
List of Figures	v
List of Tables.....	v
1. Introduction.....	1
2. Theoretical literature	4
2.1. The human capital theory	4
2.2. Education and economic growth	7
2.3. The process of economic development	9
3. Overview of the Namibian economy	12
3.1. Geography and population.....	12
3.2. The characteristics of the Namibian economy	12
3.2.1. Dualism	13
3.2.2. Unemployment and environmental sustainability	13
3.3. Structure of the Namibian economy	14
3.3.1. Primary sector	15
3.3.2. Secondary sector	18
3.3.3. Tertiary sector	20
3.4. Empirical Evidence.....	21
3.5. Namibian economy's skills requirement	24
4. Education in Namibia.....	30
4.1. Background.....	30
4.2. Education expenditure	32
4.3. Education expenditure and economic growth in Namibia.....	36
4.4. Efficiency in education.....	39

4.4.1. Measure of education performance.....	40
4.4.2. Primary education	40
4.4.3. Secondary education	41
4.4.4. Tertiary education	42
5. Conclusion	45
References.....	50
Appendix Tables	55

List of Figures

Figure 1: Sectoral shares of the Namibian economy in N\$ millions	14
Figure 2: Diamond mining and other mining activities in Namibia, N\$ millions	16
Figure 3: Composition of the Namibian primary sector's main sub-sectors (constant prices, N\$ millions)	17
Figure 4: The composition of the secondary sector activities in Namibia (constant prices, N\$ millions)	19
Figure 5: Sectoral GDP composition in Namibia by main sectors in constant prices	19
Figure 6: Budgeted education expenditure in Namibia, 1990/01-2003/04	35

List of Tables

Table 1: Namibian GDP by activity (at constant 1990 Prices in N\$ Million.....	21
Table 2: GDP growth regression results	22
Table 3 Projected Supply and Demand of Human Resources in Namibia by 2006.....	24
Table 4: Enrolment, University of Namibia.....	25
Table 5: Enrolment Polytechnic of Namibia.....	26
Table 6 Vocational Training Centres Enrolment in Namibia	26
Table 7: Trades and programmes offered at vocational training centres in Namibia	29
Table 8 Enrolment and gross enrolment rates by level & type of education in Namibia, 1994-2001.....	30
Table 9: Percentage share of tertiary institutions in the tertiary sector in Namibia.....	37
Table 10: Pass and failure rates at the different levels of schooling for 2002	41

1. Introduction

Namibia, like many other developing countries is faced with the challenge to create employment and generate real meaningful economic growth that will facilitate poverty reduction and general advancement in the welfare and living standards of its people. Education is viewed as a prerequisite for raising standards of living in developing countries to the level of those already enjoyed in developed countries (Glewwe 1999: 3). Achieving such goals requires pursuance of education policies that are synergistically integrated with the rest of the economy and which balance economic growth with human capital accumulation at different levels and in line with the structure of the economy. Weak links such as the lack of skills or the provision of inappropriate skills will undermine economic growth, the accumulation of human capital efforts and result in lopsided development.

The issue of human capital accumulation is of special importance to Namibia. At independence in 1990, Namibia found itself faced with huge imbalances and inadequacies in human skills necessary to drive the economy. Prior to independence, the Namibian economy was literally a part of the South African economy and as result it is heavily dependent on that economy. This situation has affected the structure of the Namibian economy. It allowed for an imbalance in the structure of the Namibian economy.

Namibia has since independence in 1990 experienced mixed economic growth. It recorded impressive annual growth rates 8.2%, 7.2 %, and 7.3% in 1991, 1992 and 1994 respectively. Growth has since then declined and averaged only around 3% between 1995 and 2002. Such growth has not been enough to make a significant dent in unemployment, estimated around 35 percent using the broad definition of unemployment (Ministry of Labour 2002), poverty reduction, and other economic and social imbalances. Namibia has one of the most skewed and unequal income distributions in the World, with a Gini-coefficient of 0.701 (Schade 2000: 111). Education indicators in Namibia continue to paint a faint and bleak picture of human capital accumulation. Despite the level of investment and the priority given to education, there remains a large gap in the economy in terms of human capital accumulation and provision of skills to the economy.

Although developing countries have been spending a fair proportion of budgetary resources on education, their schools or education systems are said to be of lower quality (Colclough

and Al-Samarrai 2000: 1939). Such a situation results in education not contributing to economic growth and to development as much as it should. The way education is rewarded results in further alienation of skills in sectors which are significant for economic growth. Since there are no skills in these sectors, production cannot take place efficiently and as a result there is little attention is paid to such sectors. Efficiency and hence competitiveness cannot be achieved if the skills for such a sector are not intentionally provided for. If education quality is poor then it will fail to contribute to wealth redistribution in a way good quality education would have contributed. The poor regions have poor schools, high dropout rates and do poorly in subjects which would allow them not only to take up courses in well-rewarded fields, but also in fields that require technical skills. This situation eliminates such learners from enrolling for technical fields and deprives them from participating in the economy of the country even if there is a deliberate programme to use education as an economic mover.

While there is a large body of literature on the subject, there appears to be few or no such studies specific to Namibia, especially looking at the link between education, growth and the structure of the economy. This assignment explores the relationship between education and economic growth with regards to Namibia. The main question the assignment wishes to address is whether education really matters if the structure of the economy is not in tune with its factors of production and the resources it is endowed with. Can education bring into harmony the structure and the resources of the economy by ensuring that the right skills are accumulated? Is education the panacea for slow-growing economies? The study investigates these issues with relation to Namibia and asks whether the education system is attending to inadequacies in the structure of its economy.

In section 2 we carry out a review on what the literature says about human capital accumulation and economic growth. It addresses issues of human capital theory and the relationship between education and economic growth, by examining the channels through which education impacts economic growth. Further, the process of economic development and how the stage of development interlinks with human capital accumulation process is addressed. It is concluded that education can play an important role in the economy provided certain conditions are met in deciding what skills to impart through the education process.

Section 3 is an overview of the Namibian economy. We describe the geographic and demographic aspects of the Namibian economy, the characteristics of the Namibian economy

as well as its structure. An empirical study is conducted to ascertain the significance and the causality direction between GDP growth and the growth in GDP activities. We use the regression and causality evidence to put in perspective the skills requirement of the Namibian economy. Identifying the important activities can be used to motivate which skills the education process should encourage and the causality direction indicates whether such skills will result in expected effects on the economy.

Section 4 looks at education in Namibia. It provides a short background of the education process in Namibia. We then turn to issues of efficiency in education and the economy in terms of expenditure on education. Spending on education needs to be on the right education that provides the right or needed skills to the economy. Further we address efficiency in terms of delivery of education and provision of skills. Last but not least, we conclude with section 5.

2. Theoretical literature

2.1. The human capital theory

The basic premise of the human capital theory is that education and training enhances a person's stock of human capital and increases the person's productivity potential (Barker 1998: 101). It accentuates a direct link between education and high productivity. The human capital anecdote resulted in the wide motivation and justification of colossal investment in education. The validity of the human capital model is still questioned today. Human capital theory has focused mainly on issues of measurements, rewards to education, issues of ability, family background and financial status, segmented labour markets, income structures, and whether education is a screening device or whether it introduces skills to people (Barker 1998: 103-105).

While such issues are just as important and need understanding, the theory in the literature does not appear to address the role education can play to steer the economy in a certain direction. Currently the theoretical literature appears to be dominated by the view that education is an endogenous part of the economic process reacting to the endogenous needs of the economy. The role of education has to be viewed in the broad context of what it is able to do, and what it is not able to do and the global context in which economies operate. Even if there is a direct link between education and productivity, one needs to be aware that it only has a marginal effect. It results in the rearrangement of resources at the current level of development. In order for education to expand the economy, it needs to provide skills the absence of which constrains the economy from expanding.

The role of education as an economic mover has always appeared in the background in economics of education (Vaizey 1964: 20). There has been some progress since then, but there still remains a great deal to be done to allow education to play its rightful role in the provision of skills, especially in developing countries. There is still a need to explore education as an economic mover. A well-trained work force is generally regarded as a prerequisite condition for economic growth (Heijke 1996: 1). This suggests that the causality relationship runs from education as an imparter of knowledge to economic growth. Heijke (1996: 3) further points out the difficulty in planning human resources for the economy.

The difficulties need not be viewed as invalidating the education ability as an economic mover. The current regard and treatment of education as an endogenous variable of an endogenous economic process has not met with much success in developing countries. There is perhaps a need to understand the economy in its entirety and to gear the education process and human accumulation strategies based on a good knowledge and understanding of the economy. Such knowledge and understanding will minimise the difficulty in planning for the skills in the economy.

The endogenous view of education views education as contributing to the economy based on the returns on education. Blaug (1970) argued that a high level of education is associated with high earnings. Similarly, higher levels of education minimise the chances of being unemployed. However, if more people attain a high level of education, the earnings decline as well. In the meantime, unemployment prospects for people with lower levels of education increase. Muabu and Schultz (2000: 327) examined the problem with regard to South Africa and found declining returns on education of white South Africans as more black South Africans attain high education levels. Even if education leads to efficiency and productivity gains, it produces its own setbacks to growth, which may undermine productivity gains.

Pritchett (1996: 2) found that education may not always lead to more rapid growth. He concludes that education growth (human capital accumulation) has a strong negative association with conventional constructed growth accounting (p 42). It implies that education leads to the deterioration in the economy. Gomez and Foot (2003: 144) in the same way argue that education (human capital development) can be detrimental to growth. Iyigun and Owen (1996) argue that education depresses growth through crowding out investment in other skills attained through experience for instance. This need not be taken to suggest that education does not have a role or is irrelevant to economic growth, but that certain conditions need to be met for education to matter.

Education in itself does not necessary create employment. Questions are still raised whether education is a screening device or whether it instils skills (Pritchett 1996: 42). A historical relationship between education and economics shows that education was primarily concerned with efficiency issues, and was not necessarily an imparter of skills that leads to significant expansion in the economy. Education initially concentrated on language skills and less so on any other specific specialised skills (Vaizey 1964: 23). Ricardo favoured education as means of inculcating habits, which would lead to small families (Vaizey 1964: 19). Education was

principally valued for its ability to produce prudent habits and for its contribution to the functioning of society and the maintenance of civil and political liberties. Formal education does not appear to have been synonymous with aspects of technical skills as such. It was merely to serve the purpose of making the treatment and processing of information easier, with the resultant benefit of efficiency gains.

In South Africa tertiary education is found to increase the probability that a person will exploit a new business opportunity and create a successful new firm (Sherbourne 2003b). Such evidence can lead to education being regarded as instilling skills. However, education may just have enhanced the information management of the tertiary education graduate. It would also be interesting to know what kinds of business opportunities tertiary education graduates exploit. The service sector is mostly the hub for tertiary graduates. It confirms education as contributing to more efficiency through creating conditions that allow for the better processing of information and as a means of sustaining societal attitudes appropriate for economic progress. But perhaps more importantly is its suggestion that education can be used as an economic mover. If the education process can concentrate on other sectors such as the secondary sector, it could have similar success as it is having in the tertiary sector in South Africa.

Education in the classical sense has not really demonstrated itself as an imparter of technical skills, as the study by Pritchett (1996) suggests. However this could be as a result of less emphasis on the provision of skills to the productive sectors of the economy. Donaldson (1992: 3) admits that education plays a role in growth, but growth can nonetheless be driven and even sustained in other ways. He indicates that productive skills are largely learnt in other ways than by formal schooling and gives learning on the job or ad-hoc training modules as examples of acquiring skills. Education appears more efficient in service-oriented fields as suggested by enrolment in service-oriented courses at tertiary institutions. However this could be due to a long period of efficiency built up due to the accumulation of skills capital in these sectors, while there is less development in other sectors such as technical skills for the secondary sector. For technical skills, vocational programs have to be run parallel with formal education.

The debate whether education is a screening device springs from these observations of the education process. Education, from an individual perspective pays off (Keswell and Poswell 2002: 7). But in terms social benefits it may only be marginal and need not be taken as given

to motivate public investment in education. As Donaldson (1992: 3) points out, education is not a panacea for slow growing-economies. Investment in education should be guided by the kinds of skills that are required for a specific economy to develop. An endogenous approach may lead to efficiency improvement, but may have little economic growth impact.

2.2. Education and economic growth

The relationship between education and economic growth has been subject to much interest throughout history. Human capital as a concept gained prominence in the 1960s in economics (Hough 1993). However, references to the concept could be traced in works of earlier economists as far back as Adam Smith (Hough 1993, De Villiers 1993)¹.

There is overwhelming support for the idea that human capital leads to economic growth. The wisdom of the human capital model is based on the understanding that sustained economic growth is linked to the development of a country's human resources (Pritchett and Filmer 1998). The strength of such a link depends on two sets of factors. Firstly, it depends on the accumulation of human capital – through investment in education, the result of which is a better-educated and knowledgeable population capable of being economically more productive. Human capital, where there is direct participation in the production process, directly generates growth to output. This is known as the so-called *level effects* (Freire-Seren 2001).

Secondly, citizens of a country should participate in the social and economic development of the country. A high level of human capital development promotes economic growth through raising technical progress since education eases the innovation, diffusion and adoption of new technology. This is known as the so-called *rate effect* (Freire-Seren 2001). In turn growth can also advance human capital development.

The human capital models suggest that more education unequivocally leads to more human capital. The policy implications of such suggestions are straightforward. However, based on the *level* and *rate* effects, it is clear that it need not necessarily be that straightforward in practice. Effective formulation and implementation of successful education investment

¹ Recent works on the topic include; Maoz and Moav 1999, Freire-Seren 2001, Andreseosso-O'Callaghan 2002 and Holtz-Eakin, Lovely and Tosun 2002 amongst others.

policies require a thorough identification and examination of the channels through which education (human capital accumulation) affects growth. The channels, through which education affects growth, may depend on the stage of development of a country and on the characteristics, features and resources of the specific economy.

According to Iyugun and Owen (1996: 14), different types of skills determine the effectiveness of investing in education. Since there is a trade-off in accumulation of job-specific skills over general skills, over-accumulation of one factor causes under-accumulation of the other. The stage of development plays a role in that education enhances growth by creating positive externalities and in the later stages it may depress growth by leading to a negative externality. The stage of development also points to the ever-changing skills requirement, which necessitates constant evolution of the education system to adjust to the skills requirement for sustained economic growth and that countries need to identify areas of focus which are important for their economies and suitable to the stage of development.

The human capital model helps in providing general guidelines on the role of education in economic growth, however important elements and specific issues need to be given special attention to better comprehend the impact of education on growth. The Iyugun and Owen (1996) study demonstrates that investment in education has the potential to produce either positive or negative externalities and that it is possible to have multiple equilibriums. Keswell and Poswell (2002: 1) also refer to multiple equilibriums as a result of a strong non-linear pattern in the returns on education. This pattern stems from income inequality in the economy which continues to perpetuate the unequal distribution. The equilibriums are associated with low and high income respectively.

Donaldson (1992: 10) postulates that education is not always good for growth and that costly and ineffective education can retard growth. Implicit in that is the fact that there are fundamental economic issues (such as the stage of development and activities in which the economy will have comparative advantage) that need addressing for education to contribute to economic growth and development. Human capital strategy has to be considerate of the stage of development and education actions directed at addressing the inadequate and reinforcing the strong aspects in the structure of the economy. Ignoring these factors, even if the quality is good, makes education ineffective, costly and wasteful.

Empirical testing of the human capital model is said to give mixed results. While most studies find a positive correlation between educational attainment levels and productivity growth, other studies find the coefficient of the educational variable does not enter significantly in a growth-accounting regression (Freire-Seren 2001). Econometric results showing a positive and significant effect of formal education on productivity growth among OECD countries are found to be spotty at best. With only one or two exceptions, educational levels, the growth in educational attainment, and interaction effects between schooling and R&D were not found to be significant determinants of country labour productivity growth. Such empirical findings are taken to suggest that human capital contributes to growth through the rate effect (Wolff 2000).

2.3. The process of economic development

The so-called Fischer and Clark's theory of structural change puts forward the idea that the economy goes through three stages of production (Montobbio 2002: 388). Economies are assumed to pass through the primary production stage, then the secondary stage, and finally the tertiary stage. In an autarky scenario, as economies develop and incomes improve, the demand for agricultural goods increases. As incomes grow, the demand for secondary products increases and the overall increase in the income increases the demand for the tertiary products as well. Primary products have a low income elasticity of demand. As a result, the secondary sector grows proportionately at a higher rate than the primary sector.

Similarly, the tertiary sector has a higher income elasticity than the secondary sector and grows proportionately faster than the primary and the secondary sector. The analogy that a big tertiary sector is an indication of development can be misleading. In some instances developing countries have large tertiary sectors without a developed secondary sector. In an open economy inputs for the tertiary sector can be imported which interferes with the link between the sectors. Gemmell et al (1998: 7) by implications argued on the same lines when he argued that faster agricultural growth causes faster growth in the secondary sector. The tertiary sector on the other hand consists of activities which depend on conditions in developed countries, such as tourism. This situation makes developing countries susceptible to income shocks in developed economies when the tertiary sector makes up a large share of the GDP.

The disproportionate share of the tertiary sector dominated by a single activity which has high income elasticity is risky. A shock to the sector might have an acute bearing on the economy. The primary and the secondary sectors are too small to absorb some of the shock, since the sector entirely depends on external incomes. The issues of immiserizing growth by Baghwati (1958) are still valid and relevant today. Black (2002) revives this debate. The main theme is that growth in an open economy might lead to a sufficient deterioration in the terms of trade and reduce the real income of the growing country. Baghwati (1958) shows how growth-induced welfare loss from deteriorating terms of trade could outweigh the dynamic gains from trade.

Although openness has advantages, there are conditions which need to be upheld in order to ensure its benefits. The opportunity to import cheaply provided by opening up the economy to trade, needs to be met by an equivalent reallocation of resources to the production of exports, which should fund the imports. Black (2002: 895) argues in the same line, but does not place the blame on the growth process. He places the blame on the trade environment in the world. Local producers find it difficult to cut cost to levels required to keep the local markets shares, due to the inability to absorb new technologies and to overcome institutional constraints. Subsidies by import-competing industries, quotas and non-tariff barriers in rich countries prevent developing countries from expanding their export markets or penetrating new markets.

The implications are that international trade is biased towards benefiting rich nations and the investment in education as a tool to enhance economic growth, will have minimal effect as long as there are protection tendencies in international trade. Even if there were no barriers, investment in education and the process of human capital accumulation might still need parallel efforts to affect the structure of the economy. Nsanzabaganwa and Black (2002: 901) quote sources that show that Africa and Latin America have stagnated or grown less rapidly than they did during the heyday of import substitution in the 1960s. It emphasises the need to understand clearly the conditions necessary before an economy can benefit from international trade, which has an implication on education investment decisions. The newly industrialised countries of Asia are said to have adopted a gradual approach to international trade and built up capacities among their own people and institutions spreading over several decades (Nsanzabaganwa and Black (2002: 902)

It is claimed that African countries have found themselves in no position to adopt the Asian route, due to direct or implied pressure by international organisations such as IMF financial assistance conditions (Nsanjabaganwa and Black 2002: 902). Further, African countries adopt Asian economic policies without understanding the track and background of those economies. Openness unaccompanied by the necessary reallocation of freed resources to export activities, leads to the deterioration of local income due to loss of employment. Another implication to the human capital accumulation of developing countries as referred to by Nsanjabaganwa and Black (2002: 900), is the adaptation to continuous changes in tastes and product specification applied in importing countries.

The level of skills of the unproductive labour force is also a barrier to the process of development. Although the labour costs could be lower in developing countries, investors do not generally perceive them as attractive propositions, due to the costs of training, which they would have to carry out (Nsanjabaganwa and Black 2002: 906). The lack of industrial skills is a major problem in developing countries. Despite the investment in education, Namibia continues to face similar problems of lack of industrial skills. The investment in education does not appear to be having any significant impact on alleviating its economic problems.

In the formal (logical) economic theorizing the constancy of the economic structure was assumed away and the structural dynamic analysis essentially could not find any space in the formal classical economic theory. Subsequent formal long-run economic growth theories including the Harrod-Domar and the recently endogenous growth theories also failed to incorporate structural change hypothesis in its logical scheme (Singh 2002: 4). Montobbio (2002: 409-410) acknowledges the fundamentality of structural change as a key component in accounting for rate and direction of GDP growth. He points out that it is problematic to explain processes of structural changes and sector interdependence.

The exclusion of structural dynamics in economic theory has resulted in the proliferation of economic policies which do not accommodate education and human capital accumulation in the context of the characteristic of developing economies. If education is not properly considered, economic policies it results in the under provision of skills necessary to enable the development of the links between the sectors. The stage of development is therefore an indicator of the skills requirement of the economy and education facilitates the provision of such skills.

3. Overview of the Namibian economy

3.1. Geography and population

Namibia has a surface area of 824 268 square kilometres. It is bordered by South Africa in the South, Angola and Zambia in the north, and Botswana, Zambia and Zimbabwe to the east. It is a semi-arid country with the Namib Desert stretching along the whole west coast of the country, and another desert, the Kalahari Desert, along the South Eastern borders with Botswana. The country is demarcated into thirteen regions, namely the Caprivi, Okavango, Kunene, Omusati, Ohanguena, Oshana, Oshikoto, Omaheke, Otjozondjupa, Erongo, Khomas, Hardap and Karas Regions. The population is estimated at 1.8 million with 43 per cent of the population under 15 years of age and only about 3.6 per cent over 65 years (Republic of Namibia 2003). The population is predominantly rural, with only about 30 per cent of the population living in urban areas.

3.2. The characteristics of the Namibian economy

Namibia's economy is characterised by a dualistic production structure. The activities range from traditional subsistence to the high technology of a modern industrialised sector (Bank of Namibia 2001: 24). The mining, agriculture, and fishing sectors make up the basis of the economy. It is a small and a very open economy, exporting mainly in the primary production (mining, agriculture, and fishing sectors form the basis of the economy) and importing for most of its local market's demands. From the onset, two fundamental defects are evident in the Namibian economy, namely dualism and the reliance on the primary sector, which is dominated by activities sensitive to price changes.

Over the long term, Namibia will continue to redress three key structural problems: a) dualism in the economy, b) unemployment, and c) environmental sustainability (Bank of Namibia 2001: 24). Education is central in dealing with the three problems highlighted above. Reliance on the primary sector limits the opportunities to create employment. Education can enhance the ability to improve the processing capacity of the country, which offers employment opportunities in addition to the primary sector employment. However, education is only central as far as it responds to the requirements of the economy. Differing rewards to different careers can cause oversupply of skills in the highly-rewarded careers. The poor may

be left with the choice of enrolling for study fields leading to occupations, which are less rewarded, further maintaining the social and income gaps.

3.2.1. Dualism

The Namibian economy consists of two sub-sectors: a modern sub-sector with characteristics similar to those in developed countries where people have relatively high incomes and the traditional mainly subsistence sub-sector. Farm workers' minimum wages were set at N\$429 per month in 2002. Previously some farm workers took home as little as N\$80 (Namibian 2002). Dualism in Namibia cuts across sectors, but features most prominently in the agricultural sector (Bank of Namibia 2001: 24). The characteristics of the two sub-sectors may present a problem regarding preference in education and in the career choices. Individuals make their education choices based on the expected returns and on the ability to afford education in the areas of their choices. The modern sector with high incomes offers better returns on education. The implication is that the sub-sector with low incomes will be neglected. This raises the possibility of multiple equilibriums in the economy, in which the subsistence sector will for instance continue to operate at income levels lower than the rest of the economy (Iyugun and Owen 1996). A further implication is that investment in education may be channelled to non-productive sectors, which may even cause to deteriorate the economy in the long term (Donaldson 1992).

3.2.2. Unemployment and environmental sustainability

High unemployment places a lot of pressure on the environment and raises issues of sustainable exploitation of resources. Unemployment is estimated at 35 percent using the broad definition of unemployment and 19 percent using the strict definition of unemployment (Ministry of Labour 2002)². The fact that there is a lack of skills and technical ability to venture into secondary sector activities has resulted in a concentration on the primary sector activities. 30 per cent of the employed people are distributed among primary sector activities,

² The broad definition of unemployment, include all people of employment age who are unemployed, including those actively searching for a job as well as those that are not actively searching for a job. The strict definition of unemployment, refer to the number of people of employment age, who are unemployed and actively looking for a job.

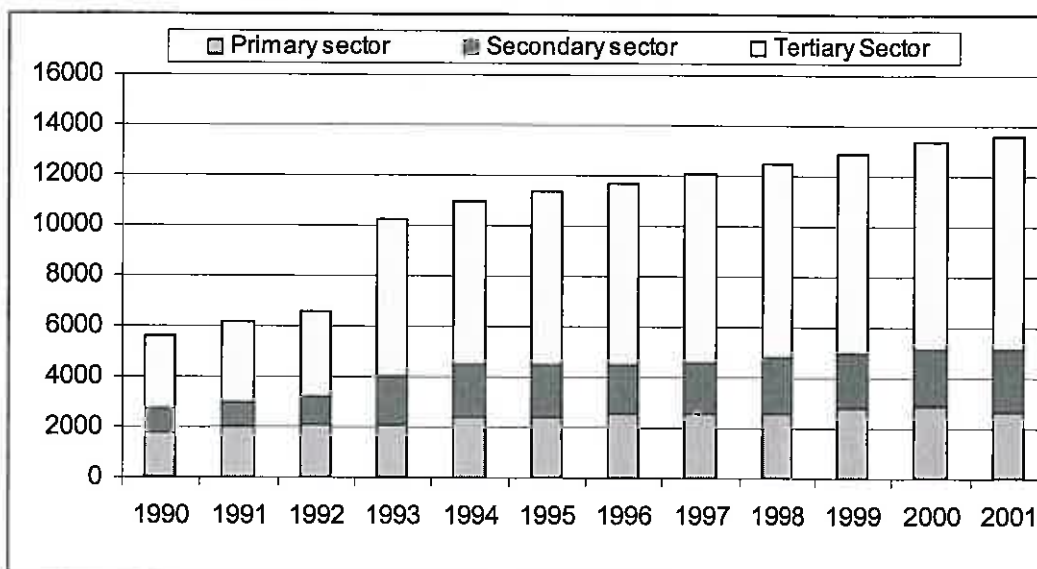
namely agriculture, fisheries and mining and quarrying (Ministry of Labour 2002). The development of the secondary sector could absorb some of the unemployed, who would otherwise have ventured into primary sector activities. Education plays a role in creating awareness in the sustainable use of resources and in developing efficient methods that save resources. Education is not only beneficial for the secondary sector, but ensures that those who remain in the primary sector are environmentally aware.

Namibia has environmental characteristics which differ from those in major technologically advanced countries. While Namibia could benefit from adopting many of the technologies, in some ways it may need to develop its own technologies. Education will play a big role in ensuring such conditions and a human resource base that is motivated and disciplined to innovate and focus on devising technologies ideal for its conditions.

3.3. Structure of the Namibian economy

In this section, focus is on the overall structure of the Namibian economy and the share composition of each sector. The composition of the economy shows the level of development and gives an indication of education requirements given the development strategy of the country. The structure gives an idea of the fundamental requirements in order for the economy to move from one stage to the next. We analyse the broad structures of the Namibian economy, namely the primary, secondary and the tertiary sectors.

Figure 1: Sectoral shares of the Namibian economy in N\$ millions



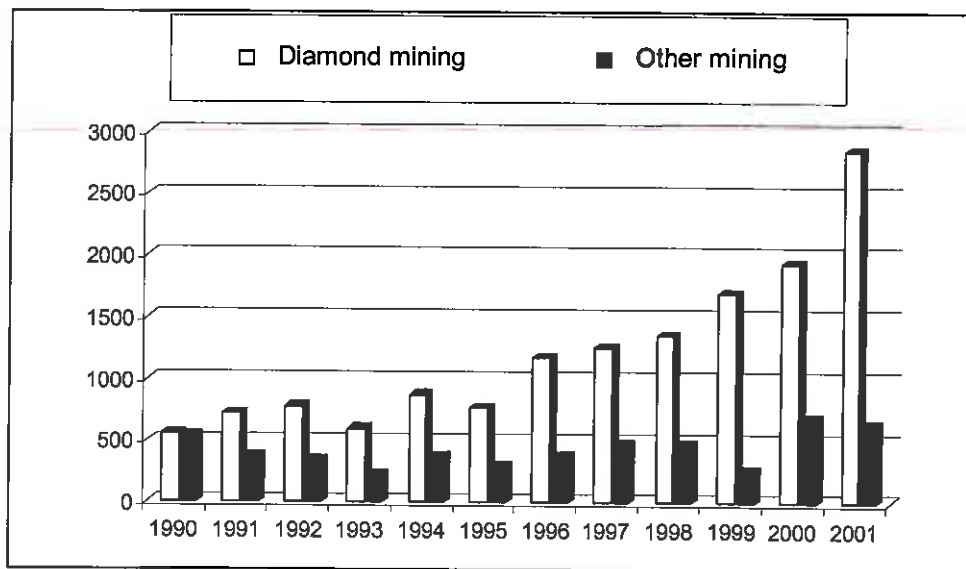
Source: The National Planning Commission (NPC) 2003

Figure 1 shows the share of each sector from 1990 to 2001. The tertiary sector appears to be growing faster than the primary and secondary sectors. The gap between the tertiary and the other two sectors is getting wider. The Namibian economy displays the typical characteristics of an underdeveloped country. In general underdeveloped economies seem to have on average a lower proportion of industrial output (secondary sector), while the tertiary sector's output is significantly not different from that in developed or industrialised economies. The primary sector on the other hand is also significantly large compared to developed economies.

The intuitive reaction is then that developing countries should industrialise. Discouraging developing countries from such an approach Baghwati (1966: 46) argues that the belief in such a necessity to industrialise is a fallacy. We take the view that it is not necessarily a fallacy and in turn argue that the necessity depends on the approach to industrialisation. The view is that economies in developing countries have not evolved in a natural progressive way. Obi (1999: 2-3) contends that the failure of the industrialisation process of most developing countries is as a result of the disregard of the characteristics of economies in developing countries. Developing economies jumped some stages leaving a gap, which made their development unsustainable. The gap in these economies is the technical skills required to sustain the secondary sector.

3.3.1. Primary sector

The primary sector activities of the Namibian economy concentrate around mining, fishing, and agriculture. Mining comprises the largest share of the sector, followed by agriculture and fishing. Although mining has shown an increase, it has also shed many jobs. The mining sector employed 9 693 workers in 1994, which declined to 6 622 workers in 2002 (IPPR 2003). The new mining activities have brought some relief, but the mining activities are characteristically mechanised and this limits the employment opportunities. Thus, the mining sector cannot provide significant job relief to an economy with an unemployment rate of around 35% (Ministry of Labour 2002). Although the mining sector has displayed growth, very few jobs accompanied this growth. Overall employment in the sector has in fact declined since 1990 (IPPR 2003).

Figure 2: Diamond mining and other mining activities in Namibia, N\$ millions

Source: The National Planning Commission (NPC) 2003

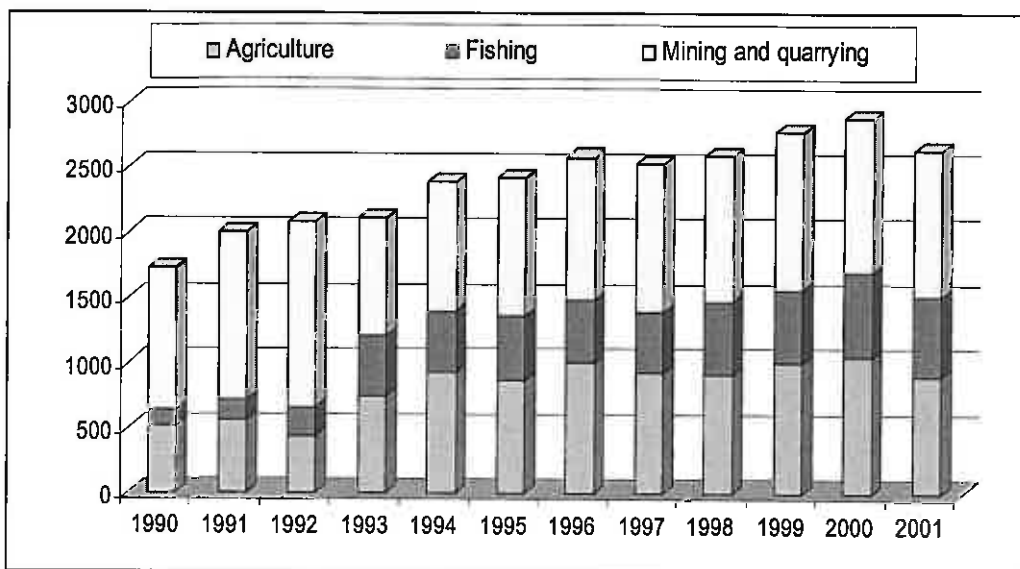
Diamond mining continues to dominate the sector (Figure 2). The diamond sector is observing an emerging move towards offshore diamond activities and the on land diamond activities are fast approaching the end of their life cycle. The offshore activities are also highly mechanised and little employment relief can be expected. This, coupled with unstable prices in other primary sector's commodities, make the primary sector erratic for reliance to achieve economic goals.

The fishing industry is also of great importance to the primary sector and generally to the Namibian economy. However it has little further margin for serious expansion that can create significant employment. The capacity of the fishing sector is naturally constrained and further expansion will lead to depletion of fish stocks. The sector has in recent years experienced cuts in fishing quotas in order to restore the fish stock capacities. Total allowable catches have declined from 703 350 tonnes in 1999 to 567 550 tonnes in 2003 (Ministry of Fisheries 2003). Fisheries, both primary and secondary activities, make up about 5 percent of total GDP (National Planning Commission 2002). Like the mining industry, the capacity of the fishing industry to bring further relief is minimal. The mining sector will require significant expansion in mining activities, while the fishing sector will require proper management of the fisheries resources.

The alternative channel that can benefit the Namibian economy through ownership of resources is largely unavailable. The economy relies on external investors to undertake

investments. There is further potential to boost local consumption through ownership, which can further bolster economic activities in Namibia. It follows from the argument that the economy is demand-constrained. Lack of income is viewed as limiting economic activities in developing countries (Feldstein 1998: 358). A mechanism that allows income-constrained citizens to benefit directly from these resources or to own the resources will stimulate the economy. However this is based on the assumption that there is capacity to produce locally and that consumers have a preference for local products and services.

Figure 3: Composition of the Namibian primary sector's main sub-sectors (constant prices, N\$ millions)



Source: The National Planning Commission (NPC) 2003

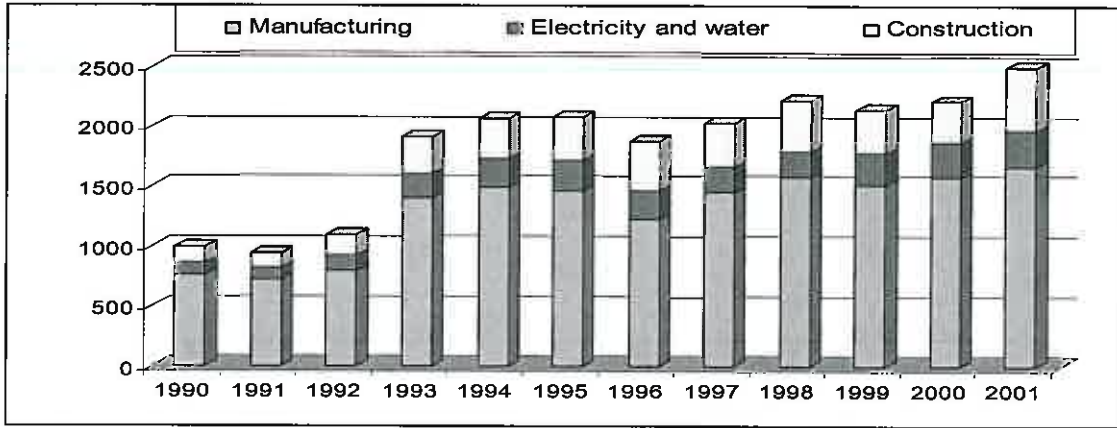
Agriculture is a strategic sector in any country. The current debate in the World Trade Organisation is proof of that and can be linked with the argument that economies are demand-constrained. Subsidising the agricultural sector ultimately means, subsidising the general economy. The sector remains under-developed in developing countries. It is therefore coherent with the behaviour of some western economies, which display a reluctance to eradicate agricultural subsidies. The implication is that it limits the potential markets for developing countries. This is however a different topic altogether and does not fall in the scope of this study. However this brief mention highlights to some degree the inconsistency of theoretical arguments against subsidisation in general.

In Namibia, agriculture is the largest employer in the country and it directly and indirectly supports around 70 per cent of the population (Bank of Namibia 2001: 24). This is a characteristic typical of developing economies. However, in Namibia agriculture does not make up the largest output share of the primary sector despite the fact that it supports a large share of the population. This can be viewed as a sign of the additional potential of the sector. The sector still holds great potential in both the communal and commercial sub-sectors (Bank of Namibia 2001: 24). The climatic circumstances, namely persistent droughts, pose a permanent hurdle for the sector to develop to its full potential. These conditions call for innovation, creativity, and development of technologies, which can help Namibia to utilise the resources offered by the sector cheaply. The potential of the secondary sectors depends especially on the development of the agricultural sector of which the products can potentially be processed. The significance of the agricultural sector lies not only in its potential to create further employment, but also its association with the secondary sector. It is claimed that growth in the secondary sector is associated with the long-run growth of the agricultural sector (Gemmel et al 1998: 22).

3.3.2. Secondary sector

The secondary sector is very important to the economy of any country due to its capacity to create employment. It also serves as an economical motivator for the primary sector. The import size is a major problem for the Namibian economy. Namibia imports around 80 per cent of the products consumed in the country (National Planning Commission 2002). This represents huge opportunity costs in terms of employment and income forgone by the country. Headway in the secondary sector, presents the best hope for the Namibian economy to emerge from its current state. Creativity and innovation and proper skills enable the secondary sector to develop to its full potential. Creativity and innovation allows for the development of techniques that allow competitive production. Education is a crucial aspect in the development of innovation and creativity processes.

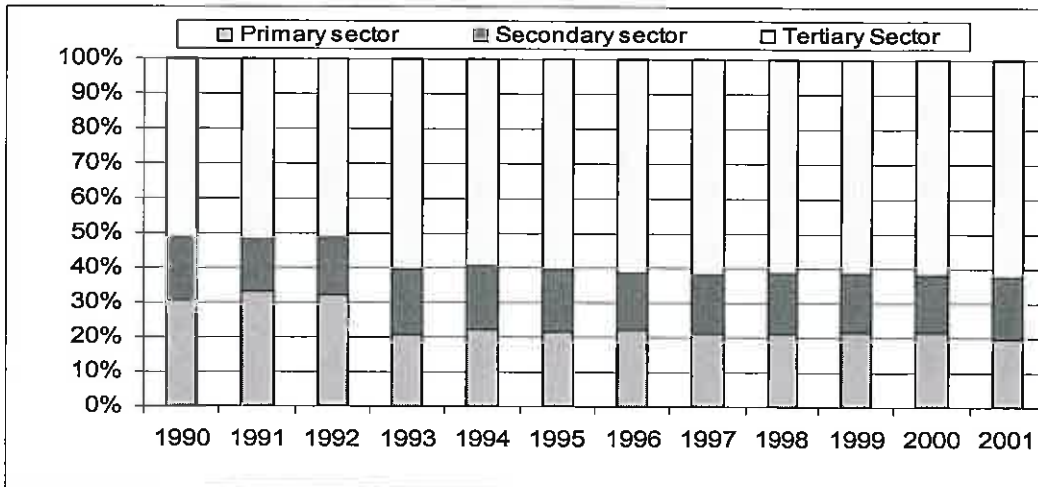
Figure 4: The composition of the secondary sector activities in Namibia (constant prices, N\$ millions)



Source: The National Planning Commission (NPC) 2003

The secondary sector is dominated by manufacturing activities, which show overall steady increase since 1990 (Figure 4). However, overall comparison shows the share of the secondary sector remaining more or less constant to total output and less than 20 percent of total GDP (Figure 5).

Figure 5: Sectoral GDP composition in Namibia by main sectors in constant prices



Source: The National Planning Commission (NPC) 2003

3.3.3. Tertiary sector

The tertiary sector, unlike the primary and the secondary sectors has a share of output similar to that of developed economies (Baghwati 1966: 43). The tertiary sector makes up over fifty percent of total GDP since 1990, and has increased to over sixty percent by 2001 (Figure 5). The non-proportional increase of the tertiary sector has implications on the education choice of the people. The tertiary sector offers the highest rewards to education and as a result, career choices could be biased towards tertiary activities. The primary and secondary sectors continue to play a secondary role to the tertiary sector in career decisions (Godana and Ogawa 2003: 38-42). The consequences are that the primary and the secondary sector continue to be unexplored to full potential and the economy is unable to grow at a rate that will reduce unemployment.

The Namibian economy is very dependent on South Africa, with close to 70 per cent of Namibia's imports coming from South Africa, while about 80 per cent of primary products are exported to South Africa (Uanguta 1999: 23). There are historical reasons why the Namibian economy is integrated into the South African economy. These links have suffocated the potential opportunities for the secondary sector in which Namibia needs to expand. Sectoral growth outlook for Namibia is mixed, with the main growth-generating sectors facing negative or no growth and few sectors facing moderate to good growth. Only mining and the manufacturing sectors show favourable projections (Sherbourne 2003a).

The mining sector is projected to grow, because of the establishment of the Skorpion Zinc mine near Roshpinah in the South of Namibia (Sherbourne 2003a). However, its employment capacity is limited for well-known reasons, namely that mining is highly mechanised and technical, and there is a lack of technical skills in Namibia. Therefore, to an extent the development will create a limited number of employment opportunities for Namibians and will depend on foreign skills. For hotels and accommodation, post and telecommunication, and financial intermediation, only modest growth is projected. Negative growth is projected for agriculture, fishing, and construction, while no growth is projected for producers of government services. Table 1 contains GDP data per industry from 1990 to 2002³.

³ Data for 2002 are provisional

Table 1: Namibian GDP by activity (at constant 1990 Prices in N\$ Million)

	Primary industries	Secondary industries	Tertiary industries	All industries
1990	1 726	1 000	2 913	5 481
1991	2 012	951	3 179	5 949
1992	2 085	1 103	3 363	6 361
1993	2 113	1 916	6 182	10 142
1994	2 397	2 072	6 515	10 901
1995	2 421	2 081	6 858	11 251
1996	2 587	1 879	7 204	11 545
1997	2 536	2 027	7 507	11 933
1998	2 593	2 220	7 668	12 337
1999	2 778	2 147	7 948	12 721
2000	2 887	2 214	8 236	13 186
2001	2 648	2 408	8 484	13 381
2002	2 691	2 450	8 677	13 656

Source: IPPR Data Base

3.4. Empirical Evidence

Under this section, we carry out an empirical investigation and test the significance of the correlation of the different sectors to GDP growth in Namibia. The intention is to explore whether there is any consistent tendency for changes in one sector to cause changes sectors in GDP in general. GDP growth is regressed on the growth in agriculture, construction, and electricity, other services⁴, manufacturing, mining, transport, wholesales and fisheries.

$$\Delta\text{GDP} = B_1 + B_2\Delta\text{Agric}_t + B_3\Delta\text{Cons}_t + B_4\Delta\text{Elec}_t + B_5\Delta\text{Manu}_t + B_6\Delta\text{Mine}_t + B_7\Delta\text{OtherS}_t + B_8\Delta\text{Trans}_t + B_9\Delta\text{Whole}_t + B_{10}\Delta\text{Fish}_t + \epsilon_t$$

Where

Agric = Agriculture

Cons = Constructions

Elec = Electricity

Manu = Manufacturing

⁴ Other services refer to services including financial services, real estates and business services.

Mine = Mining

OtherS = Other services

Whole = Wholesales

Fish = Fishing

Δ represents growth for the various variables

The intention is to show which economic activities explain or lead to GDP growth. We use the results to argue that the education process should be geared to building human capital resources in the activities that are important to GDP growth, which are expressed by the strength of the correlations.

Table 2: GDP growth regression results

Dependent variable GDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.36	0.28	1.28	0.211
AGRIC	0.08	0.01	10.94	0.000
CONST	0.02	0.01	2.20	0.038
ELEC	0.02	0.01	3.71	0.001
MANU	0.12	0.01	11.49	0.000
MINE	0.07	0.01	6.31	0.000
OTHERS	0.18	0.07	2.54	0.018
TRANS	0.07	0.02	4.34	0.000
WHOLE	0.15	0.03	5.92	0.000
FISH	0.04	0.01	5.48	0.000
R-squared	0.97			
Adjusted R-squared	0.95			

Source: The National Planning Commission (NPC) 2003

Table 2 contains the regression results of GDP growth as explained by the growth in the different GDP activities using Namibian quarterly data from 1994 (1) up to 2002(3). Growths in all the GDP activities included in the regression are positively correlated to GDP growth. This suggests that an increase in any one of these activities will increase GDP growth. As expected Manufacturing is among the GDP activities with the highest coefficients and is highly significant. It has the third highest coefficient, next to other services and wholesale activities respectively. The size of the coefficient represents the expected GDP multiplier if a change in an activity occurs.

Individually regressing manufacturing growth as the only explanatory variable on GDP growth, the R-square is 0.21 which suggest that 21 percent of changes in GDP growth are as a result of changes in manufacturing growth. Manufacturing has the most significant t-statistic followed by agriculture. Individually, changes in agriculture growth explain 27 per cent of changes in GDP growth. Construction activities only become significant when they are lagged and have a lesser impact on GDP growth. Based on the R-squared the explanatory variables explain a very large share of the GDP growth, however, the size of the coefficient alone may not be enough justification to motivate education decisions in favour of human capital development for a specific activity.

While the coefficients in themselves suggest the direction of causality they do not really establish causality direction. We use the Granger causality test to try and establish the causality direction between the explanatory variables and the dependant variable GDP growth. The results of these tests are contained in Appendix Tables 2 – 5. For more details see the appendix tables.

Establishing the direction of causality could further support the argument to. If the causality direction runs from the variables on the right side of the equation to the variable on the left side of the equation, then there is a strong case for the education decision to be directed towards economic activities that are important to GDP growth and for which causality direction to GDP growth is established. If the direction runs from the dependent variable to the explanatory variables, then it becomes a case of encouraging education to enhance internal efficiency of the economy in order to improve growth. These scenarios show the two possible ways education can be integrated into the economic process. The first scenario shows education as an autonomous process that influences the direction of the economy and with the second scenario, education depends on the feedback from the economy.

The causality test between manufacturing growth and GDP growth suggests causality running from manufacturing growth to GDP growth. The hypothesis that manufacturing growth does not Granger cause GDP growth is rejected at 99 percent significance level at one lag, while the reverse causality direction could not be rejected, suggesting that there is no significant causality from GDP to manufacturing. Similarly, the test suggests causality from agriculture to GDP at 99 percent significant level and no significant causality direction from GDP to agriculture. Fishery is another activity where causality is suggested by the Granger causality

test, runs from fisheries to GDP at 98 percent significant level. Wholesale, mining and other services, the hypothesis that either Granger causes GDP could not be rejected.

The results of the causality test appear to confirm the argument that education should be directed at developing human capital resources in economic activities that causes economic growth.

3.5. Namibian economy's skills requirement

Education can improve the economy of Namibia as well as improve the opportunities of the previously disadvantaged. In 1997 the potential labour force was estimated at about 834 000, of which 37% was in agriculture, 20% in the public sector and 16% in the industries and unemployment was around 34% (NDP2⁵ 2002: 158). Table 3 shows the stock of human resources in different sectors and the projected demand for 2006.

Table 3 Projected Supply and Demand of Human Resources in Namibia by 2006

	Stock	Demand	NEP	Supply	Surplus	Deficit
	1999	2006			2006	2006
Sector						
Financial, real estate and business	3 745	4 644	2 471	9 211	6 740	
Science	1 202	1 389	713	648		65
Social Science	2 279	2 679	1 399	5 992	4 593	
Medical	560	689	398	36		362
Agro	1 128	1 297	662	507		155
Engineering	397	498	284	90		194
Technicians	1 923	2 424	1 417	1 771	354	
Health	5 010	5 949	3 265	2 234		1 031
Teachers	16 905	19 201	9 698	6 657		3 041
Technical Skilled	6 729	8 076	4 466	5 253	787	
Non-Technical Secondary	125 939	156 825	88 965	215 000	126 035	
Unskilled and semi-skilled Primary	245 031	300 661	166 411	122 256		44 155
Total	410 848	504 332	280 149	369 655	138 509	49 003

Source: The National Planning Commission (NPC) 2001

⁵ NDP2 is the second National Development Plan for Namibia, a medium term plan from 2001-2006. It replaces the first NDP1, which ran from 1995 to 2000.

Issues to highlight here are the expected surplus and deficit of human resources in the different sectors. These can be compared with field intake at both the University and the Polytechnic (Tables 4 and 5). There are more enrolments in fields which are already expected to have a surplus supply of labour for example in the social sciences. The difference in rewards for different career fields could be responsible for such a situation. However, the subject choice at school level, which is a criterion for admittance to the tertiary education institutions, could also be responsible. The data on subject choices indicate that the subject choices play a significant role. The data demonstrate an inconsistency between the education process and the skills requirement of the economy.

Comparing Table 3 with Tables 4 and 5, it can be observed that shortfalls are projected in traditionally well-paying occupations, which have in general a high entry requirement. It therefore can be seen to suggest that people enrol to courses in which they have a chance of succeeding. This means that, they enrol in available courses and not necessarily in their preferred fields. Most learners therefore may be finishing school ill-equipped to handle courses they may be interested in, or that offer higher returns for their investment in education. This indicates a suboptimal economic decision from both the private individual as well as from the social point of view.

The individual ultimately ends up in an occupation which may be not reward him both in monetary value as well as in terms of other values to which it is difficult to attach monetary value. On the other hand society is left with an inadequate provision of skills in certain occupations for which the education system cannot produce enough people with the capacity to undertake studies for such occupations.

Table 4: Enrolment, University of Namibia

	1996	1997	1998	1999	2000	2001
Agriculture and Natural Resources	28	69	103	140	164	191
Economics and Management Science	566	651	701	757	888	1115
Education	775	866	688	675	673	854
Humanities and Social Sciences	409	388	403	424	507	808
Law	66	89	105	113	148	254
Medical and Health Science	628	712	431	384	772	406
Science	241	299	285	364	472	561
Centre for External Studies	847	543	981	1 239	1 522	1 746
Northern Campus	0	0	0	0	250	100
Total	3 560	3 617	3 697	4 096	5 396	6 035

Source: University of Namibia

Table 5: Enrolment Polytechnic of Namibia

	1996	1997	1998	1999	2000	2001
Business and Management	1 860	2 107	2 786	2 507	2 530	2 597
Communication, Legal and Secretarial Studies	578	523	392	311	293	320
Engineering and IT	757	402	320	353	458	658
Natural Resources and Tourism	124	133		243	313	388
Other	276	64		46	233	0
Total	3 595	3 229	3 498	3 460	3 827	3 963

Source: Polytechnic of Namibia

Table 6 contains data on the enrolment at Vocational Training Centres. There is a high failure rate in the Vocational Training institutions. Godana and Ogawa (2003: 21) point to poorly qualified trainers, inadequate equipment and facilities as contributing to the high failure rate. Inadequate preparedness of grade 10 and 12 learners in the subjects that are required for vocational courses can also be a possible contributing reason. Vocational training institutions could be facing the similar problem that learners that enrol at these centres are ill-equipped for the courses there. Godana and Ogawa (2003: 21) points out that the vocational institutions in Namibia have a bad reputation. The result is that they are unable to attract quality students and only weak learners enrol. This contributes to the failure rate and further exacerbates the bad reputation.

Table 6 Vocational Training Centres Enrolment in Namibia

Year	Vocational enrolment	Candidate tested	Candidate passed	Candidate failed
1990	256	299	120 (40.1%)	179
1991	261	209	117 (28.6%)	292
1992	303	304	128 (42.1%)	176
1993	355	381	139 (36.5%)	242
1994	444	328	163 (49.7%)	165
1995	511	386	199 (51.6%)	187
1996	727	324	163 (50.3%)	120
1997	975	444	256 (57.6%)	188
1998	1214	183	80 (43.7%)	103
1999	1509	277	172 (47.7%)	105
Total		3603	1681 (46.7%)	1922

Source: The National Planning Commission (NPC) 2001

It is not clear in NDP2 on what the projection in Table 3 are based. It is therefore difficult to ascertain whether projections are meant to sustain the supply of skills to the economy due to the dynamics in the skills markets. Naturally the economy needs to be supplied with new entrants to the labour market due to retirement, migration and other forms of labour mobility. There is an outflow of labour out of the economy in general, but also skills mobility between different occupations. The second concern of education is about the provision of skills to the economy for expansion.

The projections are used to motivate investment in education on the assumption that education levels and the composition of the labour force can be used to achieve economic objectives (Willems 1996: 1). Such postulation suggests a certain relation between education, the characteristic of the labour force and the economic objectives of the country, to allow citizens to benefit from the economy through employment. The postulation raises questions whether education determines the characteristics of the economy or whether the characteristics of the economy determine in which type of education to invest. The concern of education in Namibia should be both to maintain a supply of skills for the economy as well as the skills that will enable the achievement of economic objectives. While the feedback from the labour market is important, it is limited to the existing activities. Introducing new activities to the economy requires proper studying and understanding of the economy and may require an autonomous human resource plan.

As a result, there exists a feedback relationship between the skills market and the education process responsible for the provision of the skills as necessitated by the intrinsic outflow of skills from the economy. Added to that is an autonomous conjunction of education to influence the economy independently of the skills requirement in the economy. Even this connection is not necessarily independent of the skills requirement of the economy. It depends on the countries' factor endowment and activities for which there is a comparative advantage.

Consequently education decisions will be based on the activities of the economy for which there is comparative advantage that can allow the economy to expand. Education is used to facilitate achieving comparative advantage through productivity improvement. This can then be argued based on the autonomous component of education to influence economic growth that education can create competitive advantage. Thus, it can be argued that developing countries do not have competitive advantage in many economic activities due to a lack of

skills (Obi 1999: 4). However, the ability of education to improve productivity by making sure the economy is supplied with the necessary skills, is only part of the conditions. Other aspects of the economy are just as important to ensure efficiency in the economy. Education decisions and investment should therefore be guided by the knowledge of factors and sectors in which there is comparative advantage or there is potential for comparative advantage. The liaison between education and the choice of activities over which there is comparative advantage is also not straight forward. It is again an issue of whether education facilitates comparative advantage or whether it creates comparative advantage.

Education contains characteristics, which suggests that it can both facilitate and create comparative advantage. If education is viewed from a perspective where it supplies the needed skills to obtain comparative advantage, then it can be viewed as facilitating comparative advantage, while education viewed from the perspective of creativity and innovation can be viewed as creating innovation. This links with the level and rate effect channels identified as channels through which education affects economic growth (Freire-Seren 2001).

It is argued in this assignment that the secondary sector holds the potential for expanding the Namibian economy. Vocational training is singled out as an important element of the education process to ensure the provision of the necessary skills requirement for the economy. Table 7 contains the different trades and programmes offered at vocational training centres in Namibia. The trades and programmes offered at the vocational training colleges appear more service-oriented, perhaps in response to the current needs of the economy. Vocational training needs to capture and reflect the national objectives in terms of expanding the economy. The National Planning Commission (2001: 301) indicates an increased emphasis on manufacturing as an objective to achieving national economic goals. The vocational institutions need to encompass this by offering trades and programmes that are processing-oriented.

Table 7: Trades and programmes offered at vocational training centres in Namibia

Trade/ProgramSme				
Auto Electrician	Air Conditioning/Refrigeration Mech	Boiler Maker	Bricklayer / Plasterer	
Auto Mechanic	Electrician (General)	Fitter (Machinery)	Carpenter / Joiner	
Diesel Engine Mechanic	Electrician (Installation/Appli)	Fitter (Turner)	Joiner / Cabinet Maker	
Diesel Electric Fitter	Electrician (Maintenance Industrial)	Sheet metal Worker	Painter / Decorator	
Heavy Plant Vehicle Mechanic	Instrument Mechanic	Turner (Mechanist)	Plumber and Pipe Fitter	
Clothing Technology	Computer Literacy	Hairdressing	Hotel Operation	
Panel Beater/pray Painter	Radio / TV Mechanic	Welder / Fabricator	Business Practice	Secretarial and Administration

Source: The National Planning Commission (NPC) 2001

The identification of the skills requirement of the Namibia economy depends on further identification of activities and products that can be produced in Namibia competitively. Identifying the need to focus on manufacturing by itself is not enough. The education process can then respond to such identification and implement a curriculum that can meet the skills requirement and that can enhance efficiency and competitive advantage in these activities and products. Obi (1999: 5) recommends a comprehensive study of the economy in order to implement a manufacturing system in developing countries, which includes determining potential products to produce.

4. Education in Namibia

4.1. Background

The formal education system in Namibia consists of seven years of primary education, followed by five years of secondary education, and thereafter three to four years of tertiary education. There are two main tertiary institutions in Namibia: the Polytechnic of Namibia offering certificates, diplomas, and degrees, and the University of Namibia (UNAM) which mainly offers degrees, including teacher training for grade 11 and 12. There are several teacher colleges and vocational training centres.

Table 8 Enrolment and gross enrolment rates by level & type of education in Namibia, 1994-2001

	1994		1996		1998		2000		2001	
	No. of Students	GER ⁶ (%)	No. of Students	GER (%)	No. of Students	GER (%)	No. of Students	GER (%)	No. of Students	GER (%)
Primary										
Lower (G1-4)	254 821	164	244 238	154	236 823	135	232 386	114	237 274	110
Upper (G5-7)	111 845	101	128 018	112	149 115	128	156 111	132	158 978	127
TOTAL (G1-7)	366 666	138	372 265	136	385,938	132	388 497	121	396 252	116
Secondary										
Junior Sec. (G8-10)	77 842	74	80 353	74	85 206	76	100 267	86	105 643	91
Senior Sec. (G11-12)	23 930	35	24 127	35	24 480	34	23 530	32	24 934	33
TOTAL (G8-12)	101 772	58	104,480	59	109 686	60	123 797	65	130 577	68
Tertiary										
Vocational Training	383		414		1 386		2 531		2 690	
College of	1 476		1 728		2 084		2 015		1 993	
Polytechnic	--		3 345		3 498		3 827		3 963	
UNAM	3 763		4 543		4 784		4 871		6 444	
Private colleges									1 419*	
TOTAL	5 622	4	10030	8	11 752	9	13 244	10	15 090	11

Source: Godana and Ogawa (2003: 11)

Table 8 shows enrolments at different levels of schooling. A few things can be picked up from this table. The difference between the total number of learners reaching grade 10 and 12

⁶ GER stand for Gross Enrolment Rates

and the level of intake at both the vocational training and other tertiary institutions is big. Godana and Ogawa (2003: 21) find that each year more than 20 000 grade 10 leavers are added to the pool of unemployed with no skills⁷ and that youth unemployment is a major problem in Namibia. Added to that is a group of grade 12 learners that leave school and due to limited intake at tertiary institution and lack of appropriate grades, enter the labour market as well. These young people need further training after leaving school in various skills in order for them to participate in the economy.

There is an implication underlying their statement. The statement gives the impression that education from the primary to secondary levels does not instil skills. It further indicates that the institutions responsible for skills have a limited intake. The schooling component of education may not be instilling skills, but it is a necessary and compulsory stage for the component of education that instils skills. At this level, learners are equipped with sufficient literacy and numeric skills, as well as the discipline foundation necessary for the skills inculcation at the higher levels of education. While primary and secondary education has to maintain a degree of comprehensiveness due to the changing nature of skills requirement, it requires a strong curriculum that produces learners able to enrol for courses that instil skills as required by the skills demand of the economy.

The characteristics of the economy are constantly evolving due to technological innovations (De Grip et al 1997: 1). A comprehensive curriculum makes learners flexible and minimises the planning horizon needed to plan for future skills requirement. A comprehensive curriculum overcomes the problem of the heterogeneity of the skills market and the largely inflexible education process raised by De Grip and Heijke (1998: 4). Similarly regarding the evolving character of the economy, a comprehensive curriculum virtually eliminates the schooling component from the planning process for skills provision to the economy.

While the Namibian schooling component of the education process appears comprehensive, the quality of the curriculum remains a problem. The high gross enrolment rates at the low grades indicates a high repletion rate in the Namibian schools, while the declining enrolments in the higher grades demonstrates a high drop out rate in grades in secondary schools (Table 8). The quality of the curriculum is not only important because of the resources spent on

⁷ There are only about 1000 intake places in the Vocational Training Centres (VTCs)

education, but also crucial to the skills provision to the economy as the schooling component is a necessary condition for provision of skills at high levels of education.

4.2. Education expenditure

The case of education expenditure hinges on the broad debate about the characteristics of education as a commodity and how best to provide it. It raises questions about whether education is a private or a public good and whether it warrants government intervention. Education leads to both private and social returns. It is not easy to determine which of these is more significant. It is particularly difficult to determine the social benefit of education. However, the individual faces many difficulties in obtaining education. If the individual is unable to obtain the required level of education, society will miss out on the positive externalities of education. There is scepticism on the ability of the market to allocate education resources efficiently, bringing government involvement into the provision of education into the fray (Archer 1993: 3). However intervention by the government should not be taken to imply the automatic ability to allocate education resources efficiently.

The viability of the market theory is supported on the basis of the Pareto-efficiency principle, which assumes efficiency when no individual or economic agent is made worse off when an economic decision or transaction takes place. Archer (1993: 10) refers to two concepts of efficiency that are relevant to the expenditure debate. One has already been referred to above. It is about economic optimality (Pareto-efficiency). The second and more relevant to the subject under this heading is the productive (or technical) efficiency. It is defined as the production of a given quantity of output with as few inputs as possible. It is an important question about the provision of education and will be dealt with more fully in the Section 4.4.

While education may contain both private and public characteristics which raise questions of whether it can be traded in the market, education expenditure decisions in developing countries, particularly Namibia, are not necessarily based on Pareto-efficiency underpinnings. Although efficiency is an integral part of the education expenditure, decisions are taken more on the technical efficiency rationalisation. Education expenditure has more paramount concerns to address. Redistribution and redressing the injustices of the past predominantly determine education expenditure decisions in order to allow the previously disadvantaged to participate in the economy. Pareto-efficient solutions do not solve distributional problems (Archer 1993: 14). Efficiency gains may not be large enough and may take time before they

trickle down to the previously disadvantaged. The previously disadvantaged lack the necessary skills and as a result are not in a position to take advantage of the efficiency gains.

Distributional issues entail a kind of market failure, and justify government intervention to use national resources to achieve social objectives. There are also additional problems necessitating intervention. Fixed location characteristics limit the market provision of education (Archer 1993: 33). Schools are situated in fixed location and residents in an area have little choice but to attend schools in their area, even if there were other possible choices. Distance from the school for instance becomes a barrier. Education is regarded as basic right and because of the possible trade-offs with other activities, governments have to take the leading role and have to bear the costs, which otherwise an individual or a family will not be willing to incur. Individuals have other alternative choices to education. Positive externalities associated with education spending, and credit market inability, which leads to underinvestment in education by individuals and at household level, create the rationale for public sector involvement in education (Clement 1999: 4).

There are other arguments used to justify government intervention in education. The merit good is such an argument, where the individual may simply fail to appreciate the value of education. It is also alleged that there are more opportunity costs at the lower levels of education than at high levels (Keswell and Poswell 2002: 6). The argument is based on the possible convex relationship between education and earnings. The purported implication is that rates of return from schooling increase with level of education (Keswell and Poswell 2002: 13). If the chances of obtaining a high level of education are slim then an individual may just as well be discouraged from acquiring primary education.

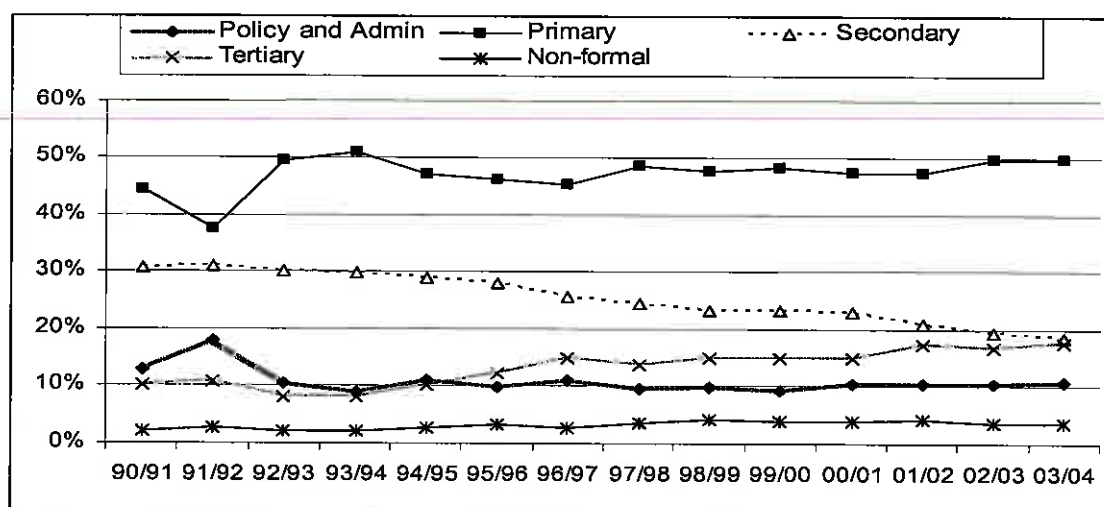
The situation described above contrasts with the findings in Psacharopoulos (1994), which finds declining returns from education by level of schooling. Lack of finance for high education can be such a barrier. This point can be associated with the myopic argument, which refers to the individual or household perceiving a low value of future benefits of education (Sherbourne 2003b). It could also be linked to risk aversion, where there is ambiguity about future education benefits. The difference in findings could be due to methods in calculating the rates of returns. Education becomes expensive by level and given that education is largely funded by governments at the low levels, from the individual's perspective the returns from higher education decline due to increasing costs.

The other point which can be made about government intervention in education, concerns the involvement of the private sector in the provision of education. It is argued that if firms are the ultimate beneficiary of the education output, then they should share in the cost of education. The free rider problem comes to the fore here. Firms will be reluctant to indulge in investment in education, because they fear the newly-trained will be lured away with lucrative incentives.

All these reasons can be assumed to be inherent in the intervention approach to education, perhaps in varying degrees, in Namibia. The question of who should pay for education is not a straight forward issue. At this juncture there appears to be no doubt that government has to play a major role in the provision of education. This should not be seen as suggesting that the private sector should not share in the cost of education. There are already those that are calling for a greater involvement of the private sector in the provision of education (Hoveka 2002). Others argue that the individuals and households should assume more responsibility for the cost of education as well. It is an age-old question and will continue to be around. The decision of who should bear the burden of the cost of education should be taken with due consideration of prevailing conditions and should continue to be reviewed to fit in with the changing circumstances.

Here we take a look at the expenditure level in the Namibian economy and its relationship to the objectives of education, quality of education and the distributional issues. We explore whether increasing education expenditure can be viewed as a solution to improving education and achieving educational objectives. It is also imperative to delve into the issue of appropriate level of public expenditure and if it is producing educational output at the lowest possible costs notwithstanding conditions imposed by the redistribution and if it is closing gaps in living standards.

Namibia's population of people aged 30 years and younger make up 70 percent of its population. This inherently implies a high education budgetary requirement. Namibia spends about 30 percent of its budget annually on education (Hoveka 2002: 1).

Figure 6: Budgeted education expenditure in Namibia, 1990/01-2003/04

Source: Republic of Namibia various editions of expenditure and revenue estimates

As Figure 6 shows, most of the education budget goes to the primary education. This has been maintained at a constant 50 percent of all budgetary inputs to education. Administration and policy has also remained constant at about 10 per cent of all education expenditure. While tertiary education has been receiving an increasing share, secondary education's share declined from about 30 per cent at independence in 1990 to under 20 per cent in 2003. It is probably due to the increasing demand for resources for tertiary education.

The expenditure pattern reflects the theory on the issues around the debate of who should pay for education. The uniform trend on primary expenditure mirrors the government's view that education is a basic human right and the statute requirement for schooling for children until the age 16 years. This in itself does not necessarily suggest that government should shoulder responsibility for the cost of education at this level. This brings us to the other issues on who should pay for education discussed above. In order for the government to comply with universal requirements of the right basic education, it had to assume the responsibility of costs of basic education, which may not be feasible due to numerous reasons.

Large sections of the communities are very poor and will not be able to afford to pay for the education of their children. The communities may just simply undervalue the benefits of education (merit good argument) and are not ready to incur any costs for education. The government might concentrate less on the high levels of education, if the returns from education are perceived high for the high the levels of education (tertiary education). This could explain the declining expenditure on secondary education in Namibia (Figure 6). At

this level the private individuals and households are ready to assume some costs responsibilities. One would also assume that individuals will be more willing to take risks and to borrow money high up the level of education. At that stage they are nearing the end of their schooling and the opportunity to start earning returns from education is closer than it is for instance when one is in primary school. Realising that some people will simply not be able to afford education no matter how high the returns are for the higher levels of education, the United Nations has introduced the universal level of education that governments must ensure.

Primary education is general in nature with regards to skills. The private sector for instance will be reluctant to get involved in incurring costs for the provision of general skills. These are normally provided through formal schooling. At this level it is left to the individual and the government to finance education. From the perspective of the firm, general skills are a form of a public good. Secondary education learners start to be channelled into branches fore-shadowing possible careers, introducing an element of specific skills and a degree of commitment from the private sector. At tertiary institutions firms are more willing to finance studies as the skills acquired at this level are more specialised.

4.3. Education expenditure and economic growth in Namibia

The issue of education expenditure and economic growth is ultimately a question of what should the resources be spent on. Section 2 gives guidance on this question. Two channels of education to growth were identified; the level effect channel and the rate effect channel. While formal education is associated more with the level effect, there is no clear separation in the education process for the kind of education is responsible for the specific skills at different stages and technical levels. The issue thus becomes one of re-looking at the education process, to accommodate at a more significant level, the aspect of education that concerns specific skills at a level that will make education carry a larger weight of the rate of channel.

It is argued in this assignment that real development will only take place if there is real growth in the secondary sector. Development in this sector requires the education process to be more skill-oriented and be able to impart specific skills. If vocational training is regarded as more capable of imparting such skills, then it should be accorded a prominent share in the national resources allotted to education. Table 9 shows that vocational training centres only

account for a 15 per cent share of the resources to tertiary institutions. Scarcity is a universal economic problem and will be at the heart of the debate of how large a share should be given to the vocational training sector. The level effect channel (the channel through which education imparts literacy and literacy skills) is important for the success of the vocational training sector and already poses a dilemma for resource-allocation decisions. Further resources for the vocational training centres are required on top of what is already being spent on education.

The current expenditure trends do not clearly reflect whether there is a strategy that seeks to address first what is viewed as important educational priorities in terms of economic growth and development objectives. Perhaps a clear understanding of the relationship between education and economic growth and development, can lead to a different arrangement of resource-allocation priorities. After addressing the issue of efficiency, it will become clear whether it is possible to reallocate resources internally in the educational sector or whether additional resources will be required. Vocational training is naturally a costly exercise and even if internal efficiency can be achieved in the education sector, one would suspect that additional resources will still be necessary for vocational education to be successful.

Table 9: Percentage share of tertiary institutions in the tertiary sector in Namibia

	2001	2002	2003
Colleges of education*	20	20	15
VTC	15	15	15
UNAM	34	34	38
Polytechnic	19	19	20
Student support	12	12	12
TOTAL	100	100	100

Source: Godana and Ogawa (2003: 19)

A lack of recognition of the relationship between education and growth is evident in the perceptions of the vocational training centres in Namibia. “The poor quality of the output of these centres has created a bad reputation and those enrolling in those centres are considered as failures” (Godana and Ogawa 2003: 21). The admission requirements, which are lower than for the other tertiary institutions contribute to this perception. The vocational training centres are viewed as taking on left-over learners, who do not make the entry requirements to perceived better tertiary institutions, the University, the Polytechnic and the teacher training

centres. The entry requirement to these institutions are grade 12, while vocational training institutions takes 80 percent grade 10 leavers and 20 percent grade 12's (Godana and Ogawa 2003: 10).

The issues of perception towards vocational training centres in Namibia, raises the matter of the education structure and the integration of vocational education into the broad education process. The matter has cost implications. If the view of this assignment that real development potential lies in the secondary sector, which requires specific job skills better provided through a vocational-oriented education program is true, then perhaps the education structure in Namibia needs to be evaluated. Perhaps reducing the current number of school years and introducing a different manner of branching learners between vocational and other tertiary institutions is needed.

The high failure rate in vocational centres, while it could be due to other factors, could be indicative of inadequate preparation for vocational studies and a result of weak entry requirements. Only 27 and 30 percent of grade 10 learners achieved a D symbol or better in mathematics and physical science respectively during 2002 (Ministry of Basic Education Sports and Culture 2003). The restructuring of the way students choose careers is necessary to ensure that resources spent on the training at both vocational and other tertiary institutions is not wasted. Currently due to the perception and the reward systems all learners appear to aspire for careers offered by the University and the Polytechnic (Tables 3, 4 and 5). This tendency is further strengthened by the inability of the vocational centres graduates to secure long term employment. The vocational training centres to some extent have focused on trades for which the labour market is already saturated.

Godana and Ogawa (2003: 21) argue that, because vocational training is directly oriented toward producing artisans and technicians for industries, the private sector has to get involved and share in costs of training. While such an argument is valid, it falls short of the ability to address the situation facing Namibia. The Namibian economy requires a major expansion of the secondary sector to accommodate a large number of unemployed. It is true that there is currently a shortfall of skilled labour in the Namibian labour market for the existing industries, but the shortfall is insignificant in terms of the of unemployment levels in the country.

Expenditure remains an issue in education in Namibia. While the performance of education can be viewed with regard to the current level of resource inputs in education, a broader question can still be asked about the sufficiency of the education expenditure levels. International comparisons are useful in such regards, but the national circumstances and educational needs of the country should be given significant weight.

4.4. Efficiency in education

Efficiency has two aspects to it. It entails the efficient use of the available educational resources as well as decision efficiency. The first aspect is concerned with using education indicators or output to justify inputs into education. The second aspect of efficiency is broad and looks at efficiency with regard to the applicability of education with regard to the social, political, and economic or developmental objectives. Assessing efficiency in education can be viewed as an evaluation of the question on what the resources should be spent, and what improvements can be made in the current education to enhance economic growth. The question of improving education can be viewed both with regard to internal improvement of the existing chosen education process (getting the best possible education output with the current resources) as well as in a broad context of a fitting system (readjustment of system or curriculum).

Often when problems are observed in education, there are immediate calls for more resources for education. Archer (1993: 75) points out that 'throwing money at schools' does not necessarily lead to improvements. Acknowledging this does also not necessarily mean that the current level of expenditure on education is adequate.

An examination of the education output shows that internal efficiency can be improved. The passing rate at grade 10 and 12 level is very poor, about 50 and 29 percent respectively (Ministry of Basic Education Sports and Culture 2003), while the overall observation of the education system with regards to the economic growth and developmental growth could be viewed as suggesting a curriculum re-evaluation as well as internal adjustments. Different education data are examined to evaluate the education efficiency in Namibia.

4.4.1. Measure of education performance

Measuring education performance is not as straightforward as it might appear. There are two main aspects to education; the cognitive aspect and the non-cognitive aspect (De Villiers 1993: 12). Standardised tests are regarded as evaluating and capturing the cognitive aspect of education. The non-cognitive aspect may prove difficult to test and it may be difficult to come to a unified consensus as on which non-cognitive goals the education system should focus. The data on non-cognitive aspects as result of these difficulties are not available. Data that tests cognitive are used as output measures for education in Namibia.

Education output can be measured at different levels. We concentrate on the two broad categories of formal schooling; primary and secondary (Grade 10 and 12). At the end of Grade 10 learners sit for a Junior Secondary Certificate (JSC) examinations. The examination is set nationally. Learners can opt to join a vocational training institution, the labour market or proceed to Grade 11. In Grade 11 learners are promoted automatically to grade 12 regardless of their performance. At the end of Grade 12 learners have an option to sit either for an International General Certificate of Education (IGCSE) or for Higher International General Certificate of Education (HIGCSE), which are set externally by the University of Cambridge Local Examination Syndicates (UCLES), except for the indigenous languages, which are set locally. The IGCSE curriculum can be divided into two sections; core and extended courses. The core course can be compared to the standard grade and the extended to the higher grade in the South African School System. Under the core, the highest grade a learner can achieve is a C. There is one school which offers A-Level.

4.4.2. Primary education

Currently the formal education policy does not include pre-primary education and primary education is the first stage in the education system in Namibia. Pre-primary schools do exist but are run privately and parents bear the costs for pre-primary education. Examination takes place at the end of every grade. Grade 1 to 4 makes up the lower primary education level and grade 5 to 7 higher primary level. Examinations at both these levels are administered by the individual schools. The passing rate in lower primary level is very high, around the 80 percent (Table 10). The same is true for the high primary level. The examination being entirely in the hands of individual schools can be problematic in that schools or teachers can

have an incentive to inflate the passing rate in order to give the perception that their schools are doing well. This can affect the overall quality of the education system.

Table 10: Pass and failure rates at the different levels of schooling for 2002

	passed	failed
Grade 4	84%	16%
Grade 7	79%	21%
Grade 10 (JSC) English a D symbol or better	52%	48%
Grade 12 (IGCSE) English a D symbol or better	29%	70%

Source: Ministry of Basic Education Sports and Culture 2003

Table 10 demonstrates the point made above. The failure rate increases as the examination becomes independent of the schools and the national examining authority. This tendency appears to be confirmed by the rapid increase in the failure rate when learners write external examination in grade 10 (external to the school). The gap between the failure rate in grades 4 and 7 is fairly small. The failure rate increases considerably when the examination is administered nationally at grade 10⁸. The failure rate increases even further when the grade 12 examinations are set and administered externally.

4.4.3. Secondary education

Secondary education can be classified into two categories; junior secondary (grade 8 to 10) and senior secondary education (grade 11 to 12). Examination at junior secondary education level is administered by the Ministry of Basic Education and Culture through the Directorate of National Examinations. The grade requirement for a learner to proceed to grade 11 and the equivalence of a pass in Grade 10 is determined by the Ministry of Basic Education and Culture. A learner needs to obtain 25 points⁹ from six subjects, which must include English with at least a D symbol or better. However, since the inception of the JSC at independence, the point requirements have ranged between 19 and 23 being the highest mandatory point

⁸ English is taken as the passing indicator at grade 10 because it is a compulsory criterion to obtain a D symbol or better in English in order to proceed to grade 11.

⁹ Points are determined using values attached to the symbols. A=7, B=6, C=5, D=4, E=3, F=2, G=1 and U=0. U represents un-graded.

requirements, because many learners continue to fail to achieve the standard 25 points in six subjects every year. It is an indication of possible internal inefficiencies.

The requirement for an equivalent of a pass in Grade 12 is generally regarded as 25 points from five subjects, which must include English with at least a D symbol or better. Tertiary institutions have had to lower their entry criteria, because few learners meet the 25 point criterion. The university for instance has to arrange bridging courses before the students can be allowed to enrol for specific main courses. This is an additional cost in terms of spending on education and the time it takes to obtain qualifications. It could be avoided if the education process was efficient enough to produce learners at the standard sufficient for university requirements.

The performance of learners at the end of junior secondary and senior secondary education levels differs hugely from the performance in primary schools (Table 10). This could be viewed as possibly due to internally-administered examinations by the schools, which could allow learners to proceed without really achieving the required cognitive levels. This then sets up a chain of inefficiency throughout the whole system, which has cost and efficiency implications. However it is important to note that other factors determine school performance as well.

It is important to make a note about crucial subjects which are needed for courses that are crucial in the activities that the economy needs to expand. Mathematics had a 27 percent passing rate in 2002 in grade 10 and 30 percent at grade 12 level. Physical science had a 39 and 33 percent passing rate at grade 10 and 12 respectively (Ministry of Basic Education Sports and Culture 2003). Such performance does little to improve human capital resources in areas with the potential to expand the Namibian economy.

4.4.4. Tertiary education

Tertiary education is the component of education regarded as responsible for imparting skills. It depends on the other lower components of education (primary and secondary) for the supply of its candidates. In Namibia there are two classes of tertiary education, in terms of the requirements for enrolment to tertiary institutions. Vocational training has a quota based on entry criteria, where 80 percent is reserved for grade 10 leavers and 20 percent for grade 12 leavers. All other tertiary institutions have grade 12 as entry requirement. There are

variations in subject requirement depending on the different faculties, but English is a general criterion for most of the tertiary institutions. Potential candidates are generally expected to obtain at least a D symbol in English.

The intake at vocational centres is very limited and the performance of the vocational centres has been largely unsatisfactory as evident in Table 4. Godana and Ogawa (2003: 21) argue that there is a need to make vocational and technical training truly tertiary education by providing a transition mechanism to more advanced tertiary education. There is in fact a need to improve the vocational and technical training in general, from a component of tertiary education that focuses on responding to the skills need of the market, to one which sets a lead for the long term economic goals of Namibia. There are very few schools in Namibia offering technical subjects and this could explain the failure rate in vocational colleges. Increasing the vocational and technical subject element in the curriculum could be a possible solution. Given the high cost requirements of such a curriculum, few schools could be identified to concentrate on vocational and technical subjects in each region.

Godana and Ogawa (2003: 38-42) examined the courses offered at the main tertiary institutions (the Polytechnic of Namibia and the University of Namibia). They report the lowest enrolments in the natural resources and tourism faculties and the highest enrolment in business management studies for the Polytechnic of Namibia. There is a similar trend in the University of Namibia, where the faculty of agriculture has the lowest enrolment and the economics and management sciences faculty has the highest average enrolments.

The situation portrayed above depicts a situation which suggests several possible explanations for education decisions. It can be argued that education decisions are taken based on the market demand for skills. This falls under a scenario where education serves the purpose of ensuring skills due to the inherent outflow of resources. However this argument loses weight when compared with Table 1, where there are projected surpluses for courses with the highest enrolments. Next it can be argued that enrolments may be due to the expected returns associated with enrolling in specific courses. This appears a plausible explanation if one considers reward expectations as including the chances of passing the courses. Some of the courses with the lowest enrolments are among the most highly rewarded occupations. However, they are also the most challenging. Therefore people might make their education decisions based on their chances of passing rather than on the market's demand for skills or on high rewards.

Further, the entry requirements could be a factor in the education choices at tertiary level. Some courses have high entry criteria and if the lower levels of education are not producing learners of the right quality, with a correct combination of subjects, individuals are left with a narrow choice of courses they can enrol for.

The scenarios for possible explanations are anchored on the assumption that there is feedback from the market about the skills requirement. While it is true that there could be or there is a feedback from the market about the skills requirement, the market does not necessarily give information on the skills requirement needed to expand the economy. In the absence of the right skills in the market, activities for which there could be potential competitive advantage will not be shown in the feedback from the market. This corresponds with the argument of the level effect of education to the economy, in which efficiency gains are only marginal and result only in marginal overall improvement of the economy.

Accordingly, if the lower levels of education are not up to the quality required, the education process will become irrelevant to the economy and develop a human capital resource that is not enhancing efficiency in the economy. The education process becomes ineffective as a tool to influence the characteristics of the economy and to enhance the competitive advantage in activities for which there are no skills currently. This illustrates the importance of education as well as the significance of the link between the levels of education.

The primary level is very important for the secondary education just as the secondary level is for the tertiary education. The primary level sets the foundation for learners to comprehend the secondary level. The secondary level is important for the tertiary education, not only because it sets the foundation for the comprehension of courses at tertiary level but also because it is a criterion according to which learners are accepted for courses at tertiary institutions. A weakness at any of the levels has an impact on the whole process and on the ability of the education process to provide the economy with the right quantity and quality of human resources. Table 8 captures this scenario that if quality is poor at lower levels, then poor performance can be expected at the higher levels as well. It may also necessitate further additional resources to provide bridging courses at tertiary levels in an attempt to upgrade the standards of those wishing to do courses for which they are not well prepared at the schooling level. This suggests low efficiency levels in the Namibian education system.

5. Conclusion

The task facing developing countries to bring about development and create significant employment and to allow comprehensive participation of many in the economic activity of their countries is complex. Continuous inability by developing countries to lift people out of poverty and to improve their lives confirms the difficulty faced by these countries (Odi 1999: 2). Namibia faces the same complexities and difficulties. This assignment explored the role of education in the economy and how education transmits economic growth. The education situation in Namibia was examined with regards to the economic growth. The assignment attempted to gauge education efficiency and quality in Namibia, in terms of efficiency in providing education and efficiency in the delivery of skills to the economy by the education process. Broadly put, the assignment examined the efficiency in human capital accumulation in Namibia using the theoretical literature as a guide.

The appendage to a person's stock of human capital sticks out as a central issue in the literature on human capital accumulation and theory on the role of education in the economy. The importance of human capital appears unquestionable in the literature. However there is no consensus on whether education enhances a person's stock of human capital or whether it is simply just a screening device (Vaisey 1964). Whether education is a screening device is beside the point, the important aspect here is the unanimous consensus on the importance of education. Its role in the economy to ensure the economy is supplied with the best available quality stock of human capital remains import regardless of whether it is an enhancer or screening device of the stock of human capital. It is possible that the education process is both an enhancer as well as a screening device and the different levels of education vary concerning the significance of these characteristics. At schooling level screening can be viewed as significant, while skills imparting is significant at tertiary and vocational training levels.

The influence of education on the stock of human capital is an important aspect which abounds in serious implications to decision-making on education. It links to the point of how education or human capital transmits economic growth and how fast. The literature is divided on the issue and deviates into two strands of views. It is divided on whether education translates to economic growth or not. Some writers feel that education from a productivity point of view, education contributes to economic growth (Blaug 1970, Barker 1998 and

Pritchett and Filmer 1998). Others feel that it does not necessarily contribute to economic growth (Donaldson 1992, Pritchett 1996, Iyigun and Owen 1996 and Gomez and Foot 2003). There are conditions under which education can contribute to growth. These differing opinions accentuate the point that while potentially education can amplify economic growth, blanket investment in education is no guarantee for economic growth. While non-education factors also have an impact on economic growth, the education domain has to provide proper quality, which must be aimed at the right skills.

This highlights the need to understand the channel through which education transmits to economic growth. The assignment addresses two channels identified in the literature; the *rate* and *level* effects (Freire-Seren 2001). The implication here is that education adopts two dexterities; expanding the economy through efficiency gains, and through a deliberate and explicit decision to expand the economy by developing skills targeted at a specific sector. The latter, without degrading the importance of the former, is important for developing countries such as Namibia. Successful application of such an education process or human development plan depends on a proper understanding of the economy of the specific country, both its internal structures and its relations to and position in the global economy.

Differing views differ on how education translates into growth centres on private /social or public benefits of education. While education may not be translating into overall economic growth, it is beneficial to the individual with the stock of human capital or the person identified and certified by the education process to possess the stock of human capital. If it benefits the individual that possesses the stock of human capital, it is argued that, by virtue of that person being a part of the society, education should benefit the society overall. This is an important observation, highlighting internal arrangement of the economy and its relation and position in the global economy, which affects the channelling efficiency gains as a result of the improved stock of human capital. There is a need for the economy to internalise the gains from productivity improvement and efficiency gain.

The stage of development of the economy is important feedback to the education process. In response, the education agenda has to be synchronised with the overall and implicit economic objective to move the economy from one stage to the next and ultimately to full employment. The education process has to sustain the supply of stock of human capital in the economy. Sustaining of the stock of human capital for the economy depends on continuous assessment

of the evolving skill needs of the economy. The education process needs to produce the stock of human capital needed by the economy, but also one that can compete in the global markets.

The dualistic nature of the Namibian economy sets the stage for the education process to have a multi-pronged approach to the provision of stock of human capital. Two things are needed: to maintain the supply of stock of human for the developed part of the economy and the need to provide the stock of human capital for that part of the economy that is lagging behind. The uniqueness of the climatic and natural conditions of Namibia identifies education as the main domain to develop technologies, or alternatively to adopt existing or developed-elsewhere technologies to suit it.

The assignment finds that there is room for improvement in the primary (mainly agriculture) and secondary sectors. The sectors continue to contribute a small share of the GDP composition. Improvement and expansion in these sectors entail a mechanised expansion of the tertiary sector. Empirical evidence shows the current small level of manufacturing activities having among the highest coefficients in the GDP growth regression. Agriculture is also significant although its coefficients are small. This is suggestive of the potential of the two sectors. Causality testing suggests that deliberate education decisions to develop the stock of human capital can lead to GDP expansion.

The skills requirement in Namibia can be described as a mismatch of skills in the economy. There is a lack of skills in some areas of the economy, while there is an abundant supply in others. There is a large pool of potential labour force, without any marketable stock of human capital. Tertiary institutions (which are perceived to impart skills), appear to be unsynchronised with the general objective of the economy. The mismatch of skills could be as a result of the dualistic nature of the economy transmitting multiple and irregular feedbacks to the education system. Enrolments continue to be high in courses for occupations regarded as not deserving priority currently. Vocational training institutions continue to represent a fraction of the other tertiary institutions, both in terms of quality, intake and expenditure. This is a worrying trend, undermining the short and long term objectives of the Namibian economy.

Structurally the Namibian education process appears well. The main problem of the education process, especially at the schooling level, appears to be quality, which makes it difficult to judge the quality at tertiary and vocational levels. The education appears

comprehensive enough, which is good, since the economy evolves and the demand for skills will continue to change. A comprehensive schooling system ensures a short planning horizon for skills development and removes the inflexible aspect of education in responding to skills demand. The performance, ability and intake of tertiary institutions depend on the supply from the schooling system. This fits well with the view that the schooling level is dominated by the screening aspect, while the tertiary and the vocational education levels are dominated by the instilling skills in the stock of human capital.

Education expenditure in Namibia is addressed in the essay largely from a theoretical point of view. It is viewed in context of private/social benefit as well as from a distributional perspective. Due to historical reasons, at this stage the distributional perspective is dominant in Namibia. Failure to redress this, limits the chances of the previously disadvantaged and the poor to attain education and skills and they continue to be marginalised. Removal of the financial barrier alone is not sufficient enough to guarantee access to education. Variance in school qualities demonstrate the need to strive further for uniform quality in all schools. The expenditure on education in Namibia, while acknowledging the importance of schooling, is undermined by the inability of schools to deliver quality education. This presents an inefficient use of resources. School outputs at grade 10 and 12 indicate an inefficient use of resources. There is a marked weak performance in important subjects such as mathematics and physical sciences. The technical and vocational element is negligible in the schooling curriculum.

While this assignment integrates a broad and significant amount of empirical and practical elements on the role of education in economic growth, it remains largely theoretical. This is a deliberate and conscious decision, due to the lack of work and studies on the subject in Namibia. A theoretical perspective and reflection on education from an economic angle can help in clearing up misconceptions about the relation between education and economics. Secondly the assignment lacks a comparative aspect to compare the Namibian situation with other countries. While countries differ and have heterogeneous characteristics, a comparison can be beneficial to learn lessons especially on homogeneous structures and characteristics.

In conclusion, the quality of the education in Namibia is found to be one of the main problems facing the Namibian education system. It presents a set back to the process of human capital accumulation and to the provision of required skills for the economy as determined by the characteristics of the economy, resource endowment and the need to ensure Namibians

participation in, and benefit from the economy. The inability of education to provide the required skills constrains economic growth. This highlights the need to carry out studies to address the issues highlighted as weaknesses of this assignment. Quality is an important aspect of education but is surrounded by complex issues, which makes it a problem area in education.

References

- Andreosso-O'Callaghan, B., 2002. *Human Capital Accumulation and Economic Growth in Asia*. Paper prepared for the Asia-Pacific Studies in Australia and Europe Conference, National Europe Centre Paper No.29
- Archer, S., 1993. *State and the Market Provision of Education: Selected Issues for South Africa*. EDUPOL, Urban Foundation, A paper prepared for EDUPOL, Urban Foundation, November – December 1993
- Baghwati, J., 1958. Immiserizing Growth: A Geometrical Note. *The Review of Economic Studies*, Vol. 25
- Baghwati J, 1966. *The Economics of Underdeveloped Countries*. London: World University Library
- Bank of Namibia, 2001. *Bank of Namibia Annual Report*. Bank of Namibia. Windhoek
- Barker, F., 1998. *The South African Labour Market – Critical Issues for Transition*. JL van Schaik: Pretoria
- Black, P.A., 2002. Immiserizing Trade: A Theoretical Note. *The South African Journal of economic*, Vol.70(5): 892-899
- Blaug, M, 1970. *An Introduction to the Economics of Education*. London: Penguin Press.
- Clement, B., 1999. The Efficiency of Education Expenditure in Portugal, *International Monetary Fund*, IMF Working paper WP/99/179
- Cohn, E., and Geske, T.G., 1990. *Economics of Education*. Oxford: Pergamon Press
- Colclough, C., and Al-Samarrai S., 2000. Achieving Schooling for All: Budgetary Expenditures on Education in Sub-Saharan Africa and South Asia, *World Development*. Vol.28, pp.1927
- De Grip, A., Heijke, H., 1998. Beyond Manpower Planning: ROA's Labour Market Model and Its Forecasts to 2002. *Research Centre for Education and the Labour Market* Maastricht University

- De Grip, A., van Smoorenburg, M., and Borghans, L., 1997. *The Dutch Observatory on Employment and Training*. European Commission DGV, A paper presented at the MEANS- Seminar, 5 March 1997. Brussels
- De Villiers, A.P., 1993. *Incentives for Efficiency in Educational Systems, with Special reference to the South African education system*. EDUPOL Research Report: Stellenbosch.
- Donaldson, A.R., 1992. Content, Quality and Flexibility: The Economics of Education System Change. *South African Institute of Race Relations*, Number 5/92
- Feldstein, M., 1998. *Income Inequality: Issues and Policy Options*. The Federal Reserve Bank of Kansas City. [Online]. Available: <http://www.kc.frb.org>
- Freire-Seren, M.J., 2001. Human Capital Accumulation and Economic Growth. *Investigaciones Economicas*, Universidade de Vigo, Vol.XXV (3): 586-602
- Gemmel, N., Lloyd, T., and Mathew, M., 1998. Dynamic Sectoral Linkages and Structural Change in a Developing Economy. *Centre for Research in Economic Development and International Trade (CREDIT)*. University of Nottingham, Vol. 98(3)
- Glewwe, P., 1999. *The Economics of School Quality Investment in Developing Countries: An Empirical Study of Ghana*. London: Macmillan Press Ltd
- Godana, T., and Ogawa, K., 2003. *Cost and Financing of Education Study Namibia: A draft report for the Human Capital and Knowledge Development for Economic Growth with Equity*. World Bank Report No: 07/05/03, EW-P078682-ESW. Windhoek
- Gomez, R., and Foot, D.K., 2003 Age and Structure, Income Distribution and Economic Growth. *Canadian Public Policy*. Analyse de Politiques, Vol.XXIX, Supplement/Numero Special 2003
- Heijke, H., 1996. Labour Markets Information for educational Investment. *Research Centre for Education and the Labour Market*. Maastricht University

- Holtz-Eakim, D., Lovely, M. E., and Tosun, M. S., 2002. General Conflict, Human Capital Accumulation, and Economic Growth, *National Bureau of Economic Research, NBER Working Paper Series, Working Paper 7762*
- Hough J.R., 1993. *Educational Cost-benefit Analysis*. Educational Research. Loughborough University Paper No. 02
- Hoveka, E., 2003. *Private Sector Involvement in Education in Namibia*. Namibia Chamber of Commerce and Industries (NCCI), A memo prepared for the Skills development and Entrepreneurship Education in International Development Seminar-Oslo, Norway 14-15 November 2002.
- IPPR, 2003. *Mining Employment*. Institute for Public Policy Research (IPPR). [Online]. Available:
<http://www.ippr.org.na/Database%20files/mining%20employemen%20t%201990-2002.xls>
- Iyugun, M.F., and Owen, A.L., 1996. Alternatives in Human Capital Accumulation: Implications for Economic Growth, *Board of Governors of the Federal Reserve System, International Finance Discussion Papers, Number 550*
- Keswell, M., and Poswell, L., 2002. How Important is Education for Getting Ahead in South Africa? *CSSR Working Paper No.22*
- Maoz, Y., and Moav, O., 1999. Intergenerational Mobility and the Process of Development. *Journal of Economics*. Vol. 109(458)
- Ministry of Basic Education Sports and Culture, 2003. Press Release: Release of Examination Results 2002. *Directorate of National Examinations and Assessment*. Republic of Namibia
- Ministry of Labour, 2002. *Namibian Labour Force Survey 2000*. Republic of Namibia
- Montobbio, F., 2002. An Evolutionary Model of Industrial Growth and Structural Change. *Structural Change and Economic Dynamics*, Vol. 13

- Mwabu, G., and Schultz, T.P., 2000. Wage Premiums for Education and Location of South African Workers by Gender and Race. *Economic Development and Cultural Change*. Vol.48(2)
- National Planning Commission, 2002. *National Accounts*. Republic of Namibia. Windhoek
- Nsanzabaganwa, M., and Black, P.A., 2002. Spokes in the Wheel of Trade Reform: An African Perspective. *The South African Journal of Economics*. Vol.70(5): 900-911
- Obi, S.C., 1999. A Framework for Implementing Appropriate Manufacturing Systems in Developing Economies. *Journal of Industrial Technology*, Vol. 15
- Pritchett, L and Filmer, D., 1999. What education production functions really show: a positive theory of education expenditures. *Economics of Education Review*. Vol18: pp223-239
- Pritchett, L., 1996. Where has all the education gone? *Policy Research Working –Papers*. World Bank Policy Research Department. WPS 1581
- Psacharopoulos, G., 1994. “Returns to Investment in Education: A Global Update”, *World Development*. Vol. 22(9)
- Republic of Namibia, (Various editions) *Estimates of the Revenue and Expenditure for the Financial Years 1990-2003*. State Revenue fund. Presented to Parliament. March 2003. Windhoek
- Republic of Namibia, 2003. *Namibia in a Nutshell: the land*. [Online]. Available: http://www.grnnet.gov.na/Nav_frames/Nutshell_launch.htm
- Schade, K., 2000. Socio-Economic Challenges: Poverty. In H. Melber (ed), *Namibia A Decade of Independence 1990-2000*. Windhoek: The Namibian Economic Policy Research Unit
- Sherbourne, R., 2003b. *The Economics of Higher Education*. Institute for Public Policy Research (IPPR). Presentation to the Polytechnic of Namibia, 22 January 2003
- Sherbourne, R., 2003a. One lump or two? *IPPR economic Outlook*. Institute for Public Policy Research

- Singh, L., 2002. *Technological Progress, Structural Change and Productivity Growth in Manufacturing Sector of South Korea*. Paper Presented at the University of Punjabi University, India
- FARMERS WORKERS' MINIMUM WAGES SET AT N\$425". *The Namibian*. 17 September 2002.
- The National Planning Commission (NPC), 2001. *The Second National Development Plan (NDP2) 2001/2002-2005/2006, Volume One, Macroeconomics, Sectoral and Cross-Sectoral Policies*. Republic of Namibia, Windhoek
- Uanguta, N. E., 1999. *An Econometric Analysis of Private Domestic Saving in Namibia*, A thesis submitted to the school of Graduate Studies of Addis Ababa University. June 1999. Addis Ababa
- Vaizey, J., 1964. *The economics of education*. Faber & Faber: London
- Willems, E., 1996. Manpower Forecasting and Modelling Replacement Demand: An Overview. *Research Centre for Education and the Labour Market*. Maastricht University
- Wolff, E.N., 2000. Human capital investment and economic growth: exploring the cross country evidence. *Structural Change and Economic Dynamics*. Vol. 11

Appendix Tables

Appendix Table 1: GDP Regression

Dependent Variable: GDP				
Method: Least Squares				
Date: 09/12/03 Time: 02:42				
Sample(adjusted): 1994:2 2002:3				
Included observations: 34 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.361724	0.281529	1.284857	0.2111
AGRIC	0.084320	0.007709	10.93815	0.0000
CONST(-1)	0.024349	0.011054	2.202691	0.0375
ELEC	0.019089	0.005143	3.711816	0.0011
MANU	0.123775	0.010777	11.48548	0.0000
MINE	0.072444	0.011474	6.313782	0.0000
OTHERS	0.182113	0.071609	2.543147	0.0178
TRANS	0.068914	0.015869	4.342679	0.0002
WHOLE	0.154067	0.026004	5.924741	0.0000
FISH	0.035164	0.006420	5.477533	0.0000
R-squared	0.966111	Mean dependent var		3.638235
Adjusted R-squared	0.953403	S.D. dependent var		2.591012
S.E. of regression	0.559305	Akaike info criterion		1.915684
Sum squared resid	7.507722	Schwarz criterion		2.364613
Log likelihood	-22.56663	F-statistic		76.02220
Durbin-Watson stat	1.991613	Prob(F-statistic)		0.000000

Appendix Table 2: Granger causality tests, GDP and Manufacturing

Pairwise Granger Causality Tests			
Date: 10/19/03 Time: 21:35			
Sample: 1994:1 2002:3			
Lags: 1			
Null Hypothesis:	Obs	F-Statistic	Probability
MANU does not Granger Cause GDP	34	8.53417	0.00645
GDP does not Granger Cause MANU		0.40536	0.52901

Appendix Table 3: Granger causality tests, GDP and Agriculture

Pairwise Granger Causality Tests			
Date: 10/19/03 Time: 21:41			
Sample: 1994:1 2002:3			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
AGRIC does not Granger Cause GDP	33	6.74526	0.00406
GDP does not Granger Cause AGRIC		0.32944	0.72208

Appendix Table 4: Granger causality tests, GDP and Other Services

Pairwise Granger Causality Tests			
Date: 10/19/03 Time: 21:44			
Sample: 1994:1 2002:3			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
OTHER does not Granger Cause GDP	33	0.18072	0.83563
GDP does not Granger Cause OTHER		1.62912	0.21415

Appendix Table 5: Granger causality tests, GDP and Fishery

Pairwise Granger Causality Tests			
Date: 10/19/03 Time: 21:49			
Sample: 1994:1 2002:3			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Probability
FISH does not Granger Cause GDP	33	4.30178	0.02349
GDP does not Granger Cause FISH		2.28283	0.12066