



Human Capital and Economic Development

Mustapha Ali¹ and Yunusa Mohammed Kaigama² (PhD)

¹General Studies Department, Federal Polytechnic Damaturu, Nigeria

²Banking and Finance Department, Federal Polytechnic Damaturu, Nigeria

Abstract: *This paper examines the influence of education and skill acquisition on human capital development, which in turn, impacts on economic development. The methodology used in this study is Descriptive Comparative Analysis (DCA), which enables one to scrutinize variables over time. This paper observes that improving human capital and human health are key to any meaningful progress in any human society.*

Keywords: *Competencies, Human Capital, Economic Development*

1.1 INTRODUCTION

Human capital is the stock of competencies, knowledge, social and personality attributes, including creativity, embodied in the ability to perform labour so as to produce economic value. It is an aggregate economic view of the human being acting within economies, which is an attempt to capture the social, biological, cultural and psychological complexity as they interact in explicit and/or economic transactions. Many theories explicitly connect investment in human capital development to education, and the role of human capital in economic development, productivity growth, and innovation has frequently been cited as a justification for government subsidies for education and job skills training (wikipedia.org).

A. W. Lewis is said to have begun the field of Economic Development and consequently the idea of human capital when he wrote in 1954 the "Economic Development with Unlimited Supplies of Labour." The term "human capital" was not used due to its negative undertones until it was first discussed by Arthur Cecil Pigou: "There is such a thing as investment in human capital as well as investment in material capital. So soon as this is recognized, the distinction between economy in consumption and economy in investment becomes blurred. For, up to a point, consumption is investment in personal productive capacity. This is especially important in connection with children: to reduce unduly expenditure on their consumption may greatly lower their efficiency in after-life. Even for adults, after we have descended a certain distance along the scale of wealth, so that we are beyond the region of luxuries and "unnecessary" comforts, a check to personal consumption is also a check to investment (en.wiki.org).

The use of the term in the modern neoclassical economic literature dates back to Jacob Mincer's article "Investment in Human Capital and Personal Income Distribution" in *The Journal of Political Economy* in 1958. Then, T.W. Schultz, who also contributed to the development of the subject matter. The best-known application of the idea of "human capital" in economics is that of Mincer and Gary Becker of the "Chicago School" of economics. Becker's book entitled *Human Capital*, published in 1964, became a standard reference for many years. In this view, human capital is similar to "physical means of production", e.g., factories and machines: one can invest in human capital (via education, training, medical treatment) and one's outputs depend partly on the rate of return on the human capital one owns. Thus, human capital is a means of production, into which additional investment yields additional output. Human capital is substitutable, but not transferable like land, labor, or fixed capital. Modern growth theory sees human capital as an important growth factor.

The educational level of its citizens says a lot about a country's economic development. It is a good indicator not only of the stage of economic development already reached but also of the potential for future growth. A nation's precious human capital is nurtured through education and promoted through the labour market. This is the national resource that more than any other will determine success in terms of GDP, investment environment and so on as nations compete in the global market economy.

Education and health are basic objectives of development. They are important ends in themselves. Health is central to well-being, and education is essential for a satisfying and rewarding life: both are fundamental to the broader notion of expanded human capabilities that lie at the heart of the meaning of development. The last half-century witnessed unprecedented advances in human capital. Health and education levels improved in both developed and developing countries. As a result, there has been some international convergence in these measures (Todaro & Smith, 2011).

2.1 LITERATURE REVIEW

Ojo (1996) as cited in Awe and Ajayi (2010), explained that improved human beings will not complain about their education, health, food, housing and security, among other things. Thus, the improved human beings are better producers who contribute positively to economic growth and its sustainability.

The concept of human capital refers to the abilities and skill of human resources of a country (Adamu, 2000), while human capital formation refers to the process of acquiring and increasing the number of persons who have skills, education and experience that are crucial for the economic growth and political development of a country. Thus, human capital is associated with investing in people as a creative and productive process.

According to Yesufu (2000), a good health policy is a means by which government can ensure that manpower is generated in the right mixes, distributed in accordance with national priorities and ensure the highest level of labour productivity.

The work of Psacharopolous (1994), according to Okuwa (2004) as cited in Sani (2010), provides comprehensive review of recent literature on returns to education investment. Several dimensions of returns to education were highlighted. The review covered 20 studies that used the full and the Micerian rate of returns for 78 and 62 countries, respectively. Central to most of the studies was the investigation of the undisputable and universal positive correlation between education and earnings. However, the interpretation is often varied and conflicting. The major findings of Psacharolopous (1994) are summarized below:

First, he observed that among the three main levels of education, primary education continues to exhibit the highest social profitability in all regions of the world. Also, private returns are considerably higher than social returns, a situation he attributed to the public subsidization of education. Second, he observed a declining pattern of returns to education over time, where all social returns declined between two and eight percentage points on average in 15-year period. However, he noted that the returns to higher education increased by about two percentage points during this period.

When gender consideration was examined, his findings confirmed that overall; the returns to female education are higher than those of males, although individual levels of education showed a more mixed pattern. Even when estimates were adjusted for selectivity bias, that is, by taking into account the prior decision of a woman on whether to participate in the labour force (Heckman, 1979, as opined in Sani, 2010), the rate of return estimate for females remained virtually unaffected, and the returns by females whether corrected or not, exceeded those of males by more than one percentage point. Moreover, the review showed a large variation between the returns to higher education faculties, the lowest social returns being for Physics, Sciences and Agronomy, and the highest private returns for Engineering, Law and Economics. Similarly, the employment sector accounted for some differences in returns. A major fact from the findings of Psacharopolous (1994) is that variation in earnings or returns to education is a function of many factors and not only the years of schooling.

Another debated issue in the literature has been the role of socio-economic background. Card and Krueger (1992a) found that, holding school quality constant, there is no evidence that parental income or education affects state level returns to education. But Newman (1991), using Israel data found that the returns to schooling are higher for those coming from favourable socio-economic background.

3.1 Global Trend on Private and Social Returns on Education

In the context of this paper, private return to investment refers to the benefits that a consumer of education derives either in the short run, long run or over his entire life span. A social return, on the other hand, refers to what a society as a whole benefits from educated citizens. Estimates of the returns to education are now available for over sixty countries in the table below.

Table 1. **The Return to Investment in Education by Country Group and Level of Schooling**

Country Group	SOCIAL RETURN			PRIVATE RETURN		
	Primary	Secondary	Higher	Primary	Secondary	Higher
Africa	26	17	13	45	26	32
Asia	27	15	13	31	15	18
Latin America	26	18	16	32	23	23
Intermediate	13	10	8	17	13	13
Industrial	-	11	9	-	12	12

Source: Psacharopolous p.101.

- The social returns to education in developing countries are at least as high as any reasonable measure of the opportunity cost of capital or social discount rate, that is, investment in machines.
- Rates of return are highest in primary education, followed by secondary and then university levels. For primary education, unit costs are small relative to extra lifetime income or productivity associated with literacy. For university education, the opposite is true.
- The same diminishing returns apply across countries: the more developed the country, the lower the returns to education at all levels. The high return to education in low income countries must be attributed to their relative scarcity of human capital.
- Private returns are higher than social returns at all levels – as a result of the public subsidization of education in most countries. The discrepancy between social and private returns is greatest at university levels which raise issues of equity as well as how educational expansion should be financed.

The following tables explain some of the aforementioned points:

Table 2. The Social Returns to Education by Level and Field of Study

Educational Level	Field of Study	Rate of Return
Secondary School	General Academic	16
Curriculum	Technical, Vocational	12
University Faculty	Law, Economics, Social Science	12
	Engineering	12
	Agronomy	8

Source: Based on Psacharopolous p. 102.

Table 3. The Contribution of Education to Economic Growth

Region	Percentage of Growth Rate Explained by Education
Africa	17.2
Asia	11.1
Latin America	5.1
North America	-
Europe	8.6

Source: Based on Psacharopolous p.102.

4.1 GENDER AND EDUCATION

Worldwide, men are more likely to be literate, with 100 men considered literate for every 88 women. In some countries the difference is even greater; for example, in Bangladesh only 62 women are literate for every 100 men (wikipedia.org).

In an OECD study of 43 developed countries, 15-year-old girls were ahead of boys in literacy skills and were more confident than boys about getting high-income jobs (wiki.org). In the United States, girls are significantly ahead of boys in writing ability at all levels of primary and secondary education (wikipedia.org). However, boys are slightly ahead of girls in mathematics ability (op cit).

There has been a significant increase in women accessing tertiary education compared to men. In the United States, the 2005 averages saw male to female university participants at a 43 to 57 ratio (Marklein, 2005). Also, in 2005-2006, women earned more Associate's, Bachelor's, and Master's degrees than men, but men earned more Doctorates (wiki.org). This is repeated in other countries; for example, women make up 58% of admissions in the UK (wiki.org) and 60% in

Iran (op cit). In Canada the 15% gender gap in university participation favored women (Christofides, Hoy, and Yang, 2006).

4.2 Health Challenges Faced by Developing Countries

- a. Absolute Poverty: poverty plays such a central role in most health problems faced by developing countries that it has its own designation in the International Classification of Diseases; code Z59.5 – extreme poverty.
- b. AIDS: Now the leading cause of death of working-age adults in the developing world. If unchecked, it may condemn sub-Saharan Africa, the hardest hit region, to grinding poverty for at least another generation.
- c. Malaria: once in retreat, its most deadly strand is now making a big comeback, particularly in Africa; it still kills about 2 million people each year.
- d. Tuberculosis: TB currently claims about 3 million lives each year. The WHO estimates that one-third of the world's population is infected with the TB bacillus, and that each year about 8 million new cases result from this 'reservoir of infection'. New, multi-drug resistant strands of TB, difficult and expensive to treat, are spreading in about '40 TB hot-zones' in the developing world.
- e. Hepatitis B: this now kills about a million people each year.
- f. Ascariasis: ascaris roundworm parasites cause clinical symptoms in as many as 21.4 million people at any given time, most commonly infecting children aged 3 to 8 years, who often become infected by putting their hands to their mouths after playing in contaminated soil, or by eating uncooked food grown in contaminated soil or irrigated with unsanitary water. The worst infections cause about 60,000 deaths per year, the overwhelming majority of them children.
- g. Cholera: once largely in retreat, cholera has been in the upsurge in recent years in many countries of Africa, Asia, and Latin America, as it has spread rapidly in this, its seventh pandemic. Untreated dehydration from severe diarrhea causes death.
- h. Denge: while many serious diseases have been in retreat, Denge and Denge haemorrhagic fever are now spreading rapidly, with millions of cases each year, and thousands of deaths.
- i. Leprosy: there are still about 600,000 new cases of leprosy each year. Between 2 and 3 million people have been disabled by leprosy, including those who have been cured but crippled prior to treatment, in India and many developing countries.
- j. Dracunculiasis (Guinea-worm disease): A debilitating illness infecting about 3 million people, largely among the poorest of the poor, who lack access to even minimally safe water.

Source: Todaro & Smith, 2011 p.429.

4.3 Percentage of Adult Population Infected with HIV or Suffering from AIDS, Selected Developing Countries, 2000

Botswana: 35.80	Kenya: 13.95	Haiti: 5.70	Mexico: 0.29
Zimbabwe: 26.06	Central Africa Rep.: 13.84	Congo: 5.07	Vietnam: 0.24
Zambia: 19.95	Mozambique: 13.22	Thailand: 2.20	China: 0.07
South Africa: 19.95	Rwanda: 11.21	India: 0.70	Indonesia
Namibia: 19.54	Cote d'ivore: 10.76	Argentina: 0.69	
Malawi: 15.96	Uganda: 8.30	Brazil: 0.57	

Source: Available at: http://www.unaids.org/hivaidinfo/statistics/june00/fact_sheets/index.html.

4.4 Health and Productivity

The devastating effects of poor health on child mortality are clear enough. But do poor health conditions in developing countries also harm the productivity of adults? The answer appears to be yes. Studies show that healthier people earn higher wages. For example, daily wage rate in cote d'ivore have been estimated to be about 19% lower among men whose health status makes them likely to lose a day of work per month because of illness than daily wage rates of healthier men. Careful statistical methods have shown that a large part of the effect of health on raising earnings is due to productivity differences: it is not just the reverse causality that higher wages are used in part to purchase better health. A study in Bangladesh found that the higher productivity of healthier workers allows them to get better paying-jobs. In another study the elimination of deformity from leprosy was estimated to more than triple earnings of workers in India (Strauss & Thomas, 1998).

Nobel laureate Robert Fogel has found that citizens of developed countries are substantially taller today than they were two centuries ago, and has argued that stature is a useful index of the health and the general well-being of a population. Increases in height also have been found in developing countries in recent decades as health conditions have improved (Strauss & Thomas: 1998).

5.1 HUMAN CAPITAL AND THE BRAIN DRAIN

The British Royal Society coined the term "brain drain" to describe the outflow of scientists and technicians to the United States and Canada in the 1950s and early 1960s. By the 1970s the brain drain came to be associated with the flow of skilled individuals from the developing world to Western Europe and North America. Of all the world's regions, Sub-Saharan Africa has experienced the most serious negative repercussions (Shinn, David: 2008).

The impact of the brain drain on Sub-Saharan Africa is complex. There is the well-known migration of highly educated Africans from the continent to other parts of the developed world. There is also substantial movement of skilled Africans within Sub-Saharan Africa. As a general rule the migration is from poor, politically unstable, and/or conflict prone countries to those that have stronger economies, are politically stable, and offer good security. The brain drain does have a silver lining for the losing country. In some cases, the Diasporas have become significant sources of financial remittances back to the home country. Other Africans in the diaspora are finding ways to make their technical expertise available through electronic networks and some actually return to help out for short periods of time. Nevertheless, the brain drain is generally harmful to Sub-Saharan Africa (Shinn, 2008).

Statistics on Sub-Saharan Africa's brain drain and migration are often confusing and contradictory. Nevertheless, there is general agreement on the trend lines. The brain drain has two categories. There are those who complete their education in Africa and then migrate for a variety of reasons. This group consists especially of scientists, engineers, health professionals, and entrepreneurs. The second category involves students who study abroad, find jobs, establish families, and become permanent residents or citizens of another country (worldbank.org).

An estimated 300,000 African professionals live and work outside the continent. Since 1990, Africa has lost some 20,000 professionals each year. About 30,000 Sub-Saharan Africans holding PhDs now live outside Africa. Over the last three decades, for example, Kenya has lost more than one-third of its skilled professionals; 3,000 highly trained Kenyans leave every year. About 10 per cent of South Africa's IT and finance executives have departed in recent years. In 2007, 150 professionals left Ethiopian Airways, mainly for higher paying jobs with airlines in the Gulf States. Between 70 and 90 per cent of Zimbabwe's university graduates are now working outside the country. To fill the gap caused by this brain drain, Africa employs up to 150,000 expatriate professionals at a cost of \$4 billion annually (worldbank.org).

There have also been significant movements of skilled Sub-Saharan Africans within the region. Oil rich Gabon and economically strong Namibia have had some success in recruiting highly educated Africans. Majority rule in South Africa in the mid-1990s resulted in an influx of educated migrants from countries like Nigeria, Senegal, Sierra Leone, Zaire, Kenya, and Uganda. Prosperous and politically stable Botswana attracted professionals, particularly to the private sector and university, from South Africa, Ghana, Zambia, Zimbabwe, Nigeria, and Kenya. The most recent data suggest that both South Africa and Botswana are now exporting more skilled personnel than they are importing. The HIV/AIDS crisis in southern Africa has contributed to the problem (Shinn, 2008).

African governments and societies must fix those problems that are driving skilled individuals out of the country. If a country has endemic conflict, the conflict must be brought to an end. If it has a long history of dictatorial rule, it must become more free and open. If corruption is out of control, it must be controlled. If the wealth of a country is being squandered, it must be channelled equitably into productive activities. If government and university appointments are made largely on the basis of ethnicity, they must in the future be made on the basis of merit. If wages in critical skill categories like medicine are unrealistically low, they have to be increased. If the government gives a low priority to support for science and technology, it must raise the priority. It is not realistic for any country to resolve all of the problems that cause professionals to depart. Countries with strong economies such as South Africa, Mauritius, and Botswana and those with significant natural resources such as Nigeria, Gabon, and Angola are in a better position to staunch the outflow. The poorest countries like Ethiopia, Malawi, and Somalia have a much more difficult task.

Each country should create a comprehensive database on the impact of the brain drain. South Africa is well advanced in this undertaking. The database will help decision-makers formulate more effective policy for retaining persons with skills in those areas where the brain drain is negatively affecting development priorities. Without detailed and up-to-date information on the nature of the problem, it will be impossible to ameliorate it in any significant way.

Science, technology, and medicine are the skill categories most adversely affected by the brain drain in Sub-Saharan Africa. Individual governments and regional institutions must make a special effort to counter losses in these fields. They can develop centres of excellence for scientific research and increase budgetary allocations for research. They can also help to establish links between research and the private sector, share information on best practices and improve ways to disseminate research findings throughout the continent. They should improve the working environment in an attempt to ensure that these persons remain in the country.

Most African countries can do much at little or no cost to improve the climate for their highest skilled individuals. They can permit unrestricted academic freedom and value indigenous experts as much they value foreign experts. For that matter, they can put pressure on the donor community to make greater use of African experts in assistance programs rather than importing specialists from outside. They can reevaluate the nation's education system to determine if it is producing the skills required for critical needs. Governments can promote development of a stronger private sector and then encourage it to work with and draw on the skills of indigenous personnel. Governmental institutions and universities can encourage human resource policies that accommodate the career aspirations of their personnel and create a positive policy environment. Health professionals in the low paid public sector can be permitted to do some private practice.

Other incentives are more costly and probably out of reach of most African countries. They include higher wages or salary supplements for professions highly impacted by the brain drain. Tax incentives and improved benefits packages might help stem the flow. Providing loans or assistance for decent housing, expanding professional training opportunities, offering grants and fellowships for research, and providing educational benefits for children are other incentives for retaining skilled personnel. Improving the physical plant and equipment where individuals work is another option.

Some countries have tried restrictive proposals to stem the brain drain. Sudan once limited departures by requiring exit permits. Others have tried contractual bonding of persons leaving for studies abroad. Another technique is to require that students who study overseas return after completion of the education to fulfil a specified commitment in a national service program. This is done by ensuring that the departing student receives a foreign visa that requires the student to return home. Ethiopia, Ghana, and Nigeria have tried this idea. Alternatively, a country can delay departure for overseas positions by requiring compulsory service. A few countries have imposed remittances on skilled personnel in order to render immigration less attractive. Eritrea asked students going to South Africa to post a \$15,000 bond to ensure their return. The students protested that they could not pay such a huge sum and the university backed down, instead withholding their academic certificates until they returned. The evidence suggests that these restrictive policies are rarely effective in stemming the brain drain (Shinn, David: 2008).

The ability of governments and the private sector to strengthen and expand African universities is a key to mitigating migration and the drain brain. In too many countries, national universities are weaker and less adequately funded today than they were just after independence. Of all the world's regions, Sub-Saharan Africa has the lowest level of tertiary education at 4 per cent. This compares with 18 per cent for Latin America and 7 per cent for South Asia. National universities and research institutions should remain the principal platforms for imparting the skills needed to develop the nations of Sub-Saharan Africa. Although there is an important role for private universities and distance education, the major public colleges still hold the key. This means more budgetary support, independence, and academic freedom (Shinn, David: 2008).

6.1 CONCLUSION AND RECOMMENDATION

This paper has exposed the exerting influence of education and health on the human capital potentials and developments of countries around the world. The paper equally highlighted the positive correlation between human capital and economic prosperity. However, the gains can be maximized if the right mix of education and training is given to the human resources of a nation, and if they are fully utilized. Some of the salient aspects of this paper include:

- The positive relationship between educational attainment (human capital) and economic development.
- The social returns to education are much higher for low level of education compared to higher level of education.
- Financing of higher education will continue to be under threat due to the high level of brain drain.

For instance, in Nigeria alone, the per capita expenditure on students as at the year 2010 according to Sani (2010), was;

Public Universities N237.2billion

Public Secondary Schools N66.417billion

Public Primary Schools N24.258billion

And country experiences on brain drain goes as follows:

The Philippines: as at 2006, approximately 8 million Filipinos were working abroad and they remitted home about \$10.7b which is equal to about 12% of the country's GDP. Medical professional were the highest especially in the Middle East countries.

China: it was estimated that only 30% of Chinese students who studied abroad return home after completion of their studies.

Iran: in 2006, IMF ranked Iran as the highest in brain drain among 90 countries surveyed.

Africa: the problem of brain drain has reached quite a disturbing proportion in Africa, with Ethiopia ranked first in the continent in terms of rate of loss of human capital, closely followed by Nigeria and Ghana.

Nigeria: in 2005, 21,000 Nigerian doctors were practising in the USA. The figures exclude those in Saudi Arabia and the entire Gulf States, Europe, Australia and others. According to the Presidential Committee on Brain Drain set up in 1988 by the Babangida Administration, between 1986 and 1990, Nigeria has lost 10,000 academics from tertiary institutions and the universities. Total estimates, including those who left public, industrial and private organizations, are over 30,000 (Sani, 2010) as cited in Mansur (2011).

It is recommended that the government should increase spending on social and economic infrastructures in order to enhance the efficiency of labour and increase productivity.

Also, the educational system should be geared towards meeting the needs of the changing society.

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