
***The role of higher education and the developing
country outlook: A literature review.***

A. Gabriella Fraser, M.A.
Economist, Principal, The Vivian Group
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Email: agfraser@viviangroupbahamas.com

This Review is broken down into five components: Today's Knowledge Economy and The Burgeoning Importance of Higher Education, The Economic Role of Higher Education, The Social Role of Higher Education, The Role of Higher Education in Developing Countries, Measuring the Contribution of Higher Education – Challenges and Criticisms.

Today's Knowledge Economy and The Burgeoning Importance of Higher Education

Global trends suggest wealth concentrated less and less in factories, land, tools and machinery, with knowledge, skills and resourcefulness of people increasingly critical to the world economy (UNESCO,2009). The word "knowledge" dominates most of today's higher education literature and its increasing importance as a driver of growth. We read of knowledge economies, knowledge societies, knowledge-based strategies for development and growth and other such iterations. Batagan (2007) cites Denham Gray who defines knowledge as the full utilisation of information and data, coupled with the potential of people's skills, competencies, ideas, intuitions, commitments and motivations. That it is fundamentally a matter of cognitive ability. Frigidis et al (2008) define this knowledge economy in terms of technology; research and development intensive industries; high information and communications technology (ICT) use; and increasing numbers of graduates, professionals and associate professionals in the workforce.

According to the World Bank (2002), knowledge and its growing importance, has become the most important factor in economic development. That the ability of a society to produce, select, adapt, commercialise and use knowledge is critical for sustained economic growth and improved living standards. The outpacing of growth rates in many OECD member countries in the past two decades by real growth in value added in knowledge based industries is cited in partial support of this assertion. The World Bank establishes that social and economic progress is achieved principally through the advancement and application of knowledge and more specifically, that higher education is necessary for the effective creation, dissemination and application of knowledge and building technical and professional capacity.

As Frigidis et al (2008) point out however the idea that knowledge plays a driving role in the economy is not new. The difference with the emerging knowledge economy they say, is in the magnitude of incorporation of knowledge and information into economic activity, which is now so great, that it induces profound structural and qualitative changes in the operation of the economy. The increased number of new patents, databases, academic and professional journals and growing expenditures in research and development activities and investments also provide supporting evidence of this emergent trend.

The World Bank (2002) characterises change in the ICT sector as revolutionising the capacity to store, transmit, access and use information. Increased computing power, diminishing prices for

hardware and software, innovations in hardware and software products, improvements in wireless and satellite technologies, and reduced costs in telecommunications are all cited by the Bank as together having all but removed space and time barriers to information access and exchange. The industrial backdrop for these advances are transformations of labour intensive tasks into more technology based activities and factory production processes that are more automated, featuring greater use of robotics and sophisticated computer controls.

Accessing knowledge requires a new set of human skills, higher qualifications, capacity for greater intellectual independence, capacity for adaptability and an understanding, willingness and ability to continue learning beyond traditional age of schooling (World Bank, UNESCO, 2000). Batagan (2007) concludes that knowledge has become the key driver of economic competitiveness and success. It has added massive value she explains to economic productivity and the application of new technologies and new ideas; including new inventions and also new applications of existing knowledge; bringing revolutionary change to virtually all markets and sectors. The increasing globalisation of the world's economy makes access and participation even more critical for the developing world. Higher education seems to be the broadly agreed and accepted vehicle that will shorten the span for "catching up" to the industrial world, and forging paths for sustainable economic progress.

The Economic Role of Higher Education

Education is indeed a core component of a nation's development infrastructure. The literature bears out a widely accepted viewpoint that as modern economic growth "anywhere in the world" is becoming more skill intensive, the need for higher levels of education, technical competence and computer literacy is also becoming more pronounced (Yusuf, 2008). Industrial activities are increasingly more knowledge-rich, raising skill thresholds and correspondingly driving demand for increased capabilities of the workforce. This Yusuf (2008) further asserts also amplifies the significance of the quality of education on growth outcomes vis-à-vis the volume of education.

Higher education is widely determined to have a direct influence on national productivity. Higher education institutions are singled out as having a particularly critical role to play in this modern context of knowledge driven economic growth. Fragidis et al (2008) take the expressed position that production and consumption capacities of today's economy, products and processes, are generated within the tertiary education system. Specifically they identify three ways that higher education institutions support economic growth: developing a qualified and adaptable workforce; generating new knowledge; and building capacity to access existing stores of knowledge, while also adapting that knowledge to local requirements. Global trends in the higher education sector reflect this growing importance, including rapid expansion of the education sub-sector alongside simultaneous differentiation of higher education systems, as new forms of higher education institutions become more prevalent.

Higher education is itself an economic activity (Pscharopoulos, 1972) and is broadly supported in the literature as a productive input, with a more schooled labour force contended as having an equivalent impact of a larger labour force. Higher education Pscharopoulos (1972) says has a raw material [students] that is processed [through learning] and which produces a final product [graduates] that is delivered to the market. The earnings differential he says of a higher education graduate versus a secondary school graduate approximates value added to an individual by the manufacturing process of higher education.

Human capital may be broadly defined as the knowledge and skills and health embodied in individuals (OECD, 2001), and education [learning and training], as the economic activity through which human capital formation takes place. Wolf (2004) cites Becker (1964) who argued the perspective that education and training were the most important investments in human capital. Nespoli (1991) offers a more simplistic view that human capital is “people potential”. People potential needed to fuel the economy. That investment in human capital matters for economic progress is both a plausible and intuitive finding.

The economic view of human capital emerges from classical macroeconomic growth theory which establishes an economy’s gross output in terms of three factors of production — land, labour and physical capital. Human capital enters the production function through the factor of labour. This labour component comprises two sources, new entrants to the workforce and the current workforce (Nespoli, 1991). The human capital impact may be differentiated for factors that improve quality and efficiency of the workforce, with consequent impact on productivity.

Broadly, the literature summarises that schooling may increase an economy’s productive capacity in either of three ways, or some combination thereof:

- Augmenting existing factor inputs, more highly educated labour resources may stimulate increased productivity of other inputs, and/or returns from limited physical capital.
- Making more effective use of inputs or more simply increased allocative efficiency. The premise here is that the more educated are better decision makers. That they’re better able to understand processes, deal with unforeseen contingencies, envisage and exploit new possibilities, have an enhanced capacity to adapt and assimilate new technologies in addition to other productivity enhancing attributes.
- Greater schooling may increase an economy’s productive capacity by contributing to the development and application of new technologies. Much of countries’ research and development, especially basic research the literature purports, occurs in universities; and that expansion of higher education is usually accompanied by increased expenditure on research and development.

Two other important economic returns of a more educated workforce are innovation and entrepreneurship. Innovation, Yusuf et al (2008) says supports increased productivity, unlocks new investment opportunities and thus enhances an economy's export competitiveness. They cite investment in human capital as a necessary tool if an economy expects to build new industries and create more productive jobs. Entrepreneurship, Bloom et al (2006) contend is especially boosted by people with advanced learning. They find that highly educated people tend to be more entrepreneurial. And further find that educated entrepreneurs tend to create more jobs compared to less educated entrepreneurs.

The World Bank (2002) has concluded that sustainable transformation and growth throughout an economy was not possible without the capacity building contribution of an innovative higher education institution. Comparative advantage the Bank says comes less from an abundance of natural resources or countries' ability to provide masses of cheap labour, and increasingly from use of knowledge, or from some combination of both. Economic growth the Bank maintained (2002) is as much a process of knowledge accumulation as of capital accumulation. Similarly, Yusuf et al (2008) emphasised their contention that industrial deepening and export diversification were possible only through higher levels of education, "if knowledge is the arbiter of economic advancement, the preparedness of secondary school graduates and training of university students must rank among the highest priorities for economic policy making". Wolf (2004) however cautions, as is the similarly expressed stance of other writers, that "only when the economic policy environment is appropriate can education promote growth, allowing skills (human capital) to be brought to bear effectively", underscoring the importance of coordination of national goals and priorities in order to optimise the economic returns of higher education.

The Social Role of Higher Education

In its broadest terms, national development can be characterised by two principle development components, economic and social. Likewise, benefits derived to a country through higher education may also be so broadly distinguished. The World Bank (2002) also defines the role of higher education institutions along these two dimensions: being critical in supporting knowledge driven growth and in the construction of socially cohesive societies. Specifically the Bank (2002) cites Harrison and Huntington (2000) who assert that the norms, values, attitudes and ethics that higher education institutions impart to students are the foundation of the social capital¹ necessary for constructing healthy civil societies and cohesive cultures. These they say are the bedrock of good governance and democratic political systems.

¹ Social capital: norms and networks facilitating cooperation either within or between groups (OECD, 2001)

The World Bank and UNESCO's 2000 report maintains that higher education simultaneously improves individual lives while enriching wider society. While it may create larger numbers of highly skilled, the report establishes a wider public interest in the benefits to higher education, which they say has the effect of “unlocking potential at all levels of society”. The system of higher education the organisations contend also has the ability to “address topics whose long term value to society is thought to exceed their current value to students and employers”; that higher education provides a space for the free and open discussion of ideas and values. Kapur and Crowley (2008) explain that by spreading knowledge and increasing debate, participatory citizenship may be extended to more members of society, thus improving the quality of democracy in a society and further contributing to greater social cohesion through greater tolerance and understanding of others.

These characterisations stem from the widely held view of the university or tertiary education graduate as a liberally educated person. Such a liberal education the literature holds helps shape morals and values, can lead to increased interest in social issues and political involvement, and greater self-awareness. Persons are trained to think and write clearly, effectively and critically; and may be exposed to a broad knowledge of other cultures and times and be able then to make decisions on the basis of wider global views and historical perspectives. That the liberally educated might cultivate appreciations for how we gain knowledge and understanding and what we know about our societies and our world; all while deepening knowledge in some chosen field of academia (World Bank and UNESCO, 2000).

In addition to the economic benefits derived from improved labour productivity of a better trained and more highly educated workforce, social mobility is also enhanced as higher education also tends to have the effect of expanding one’s options in terms of one’s capacity to participate in the economy. These and aforementioned attributes strengthen civil society and contribute to improved living standards and overall wellbeing of persons. Higher education the Bank and UNESCO say also supports development in its contribution to creating enlightened leaders, educated citizens and trained workers; individuals, potentially with the breadth of knowledge, skills, competencies, confidence and adaptability to meet a country’s development needs for industry, government and politics, and academia.

Role of Higher Education in Developing Countries

“Higher education has never been as important to the future of the developing world as it is right now. It cannot guarantee rapid economic development, but sustained progress is impossible without it.” (World Bank, UNESCO, 2000)

The number of students pursuing tertiary education worldwide has risen sharply in 37 years, growing fivefold from 28.6 million in 1990 to 152.5 million in 2007. A 4.6 per cent per year average increase, constituting a doubling in the average number of students every 15 years. Growth in the last seven years since 2000 has been most intensive, with 51.7 million new student enrolments in that period. The share of global enrolment in higher education for the Latin American and Caribbean region doubled from 6 per cent in 1990 to 12 per cent in 2007. Reflecting then shifting trends of growing shares of enrolment in higher education for the worlds developing regions (UNESCO, 2009). Emphasis on higher education grew in the developing world; and higher education institutions took on more prominent roles.

But in decades past, the goals of education for development were much more basic. Education, principally primary education, lower secondary education and literacy programmes were the development tools of the day, aimed at the most essential of human and social development conditions, like reducing poverty, improving infant mortality and life expectancies. In 1965, less than half the adult population in the developing world was literate. By 1995, the ratio had improved to 70 per cent (World Bank, UNESCO, 2000). Among African nations, as can similarly be traced for The Bahamas, establishment of at least one national university became the earliest symbols of newly independent nations. The ultimate goal of institution building is national development, and to these countries, the expectations for higher education institutions was that they would play leading roles in addressing the challenges of underdevelopment. Higher education was determined as critical to build the human capital that would in turn build the very institutions regarded as indispensable factors of development.

Investment in higher education in some parts of the developing world however was still perceived as regressive; that it amplified existing social and economic inequalities. Higher education seemed yet another misplaced priority and scarce public expenditures devoted to it have been described as regressive transfers benefitting developing country elites (Kapur, Crowley, 2008). A widely accepted viewpoint in the developing world had been that public investment in higher education yielded considerably lesser returns compared to investment in primary and secondary education. But as economic growth and development became increasingly knowledge based, the need for growing numbers of highly skilled people became more urgent for developing countries. Over a 15-year span through 2005, global returns to higher education increased by 1.7 percentage points, outpacing returns to primary education which over the same period fell by 2.0 percentage points (Psacharopoulos, 2006).

The “human deficit” of educated people and trained leadership was however undeniable in some countries. In Thompson’s (1972) analysis of the Rockefeller Foundation’s University Development Programme (UDP) of the late 1960s, the solution he explained was that indigenous institutions were needed to prepare the missing leaders and fill the need for the doctors, engineers, agronomists, economists and the many others necessary to chart nations’ courses. The Foundation’s UDP was established on the premise of building this needed national capacity by building universities. Tilak (2000) finds that “higher education is the difference in development” between and among countries.

In their 2000 joint report, the World Bank and UNESCO characterised higher education as a moving target, contending that high income countries were constantly pushing the knowledge frontier outward. This increasing trend, the report explained, further widened the income gap between industrial and developing countries; and that while the benefits of higher education were growing the costs of being left behind were also accelerating. Countries that failed to place appropriate emphasis on higher education it projected would experience “intellectual and economic marginalisation and isolation”.

The challenge for the developing world however has been in building viable higher education system and higher education institutions that meet the needs of the national economy. Ross (1973) refers to numbers of graduates ill-equipped to meet national labour force needs and expectations, and numbers of graduates in disciplines that exceeded the economy’s capacity to absorb them. Other common challenges include: chronic underfunding of the education subsector despite escalating demand; lack of autonomy; severe shortages of local qualified faculty; underdeveloped curricula; unplanned and chaotic expansion including mushrooming growth in private sector higher education alternatives; lack of capacity to conduct applied research; and lack of coordination of higher education goals with broader socioeconomic needs and national policy development. A lack of preparation to meet the growing needs and demands of the emergent skills based trends the World Bank (2002) asserts places developing and transition countries “at risk of being further marginalised in a highly competitive world economy because their tertiary education systems are not adequately prepared to capitalise on the creation and use of knowledge.”

The literature broadly affirms that basic education in a new skills economy is elevated to a college degree. Developing country goals for education demonstrate shifting priorities, from poverty alleviation to development, prosperity and growth. Higher education is no longer considered a luxury, but instead essential for survival in modern day world. Developing countries need increasing numbers of highly skilled people in order to thrive in the emergent knowledge-based world economy. Without the national value added of higher education, countries will not be able to benefit from nor be a benefit to the global economy (Tilak, 2000).

Measuring the Contribution of Higher Education – Challenges and Criticisms

While knowledge may not necessarily be a quantitative product, qualitative arguments are broadly consistent in the contention of higher education as an integral contributing factor of economic development and growth, even where empirical support is not rigorous. The following perhaps best represent the principal findings highlighted in the literature:

- A consistent and positive relationship between education and earnings (Wolf, 2004)
- Over time, populations are becoming more educated and likewise contributions of higher education to output growth are also increasing
- Higher education not only leads to higher individual income, but it is also a necessary precondition for long-term growth (Lutz et al, 2008)

Wolf (2004) simplifies the education-growth dynamic into this cyclic relationship: since higher education graduates enjoy income advantages, university expansion will generate growth, individual “upskilling” and higher output; thus, the economy needs more graduates. Despite this simplification however, Wolf also contends that while education undeniably creates human capital, the relationship between this and what happens in the labour market or the real economy is far more complex than a simple input-output model implies; and is not susceptible to precise estimation. This final observation is indicative of some of the challenges associated with attempts to estimate precisely higher education impact on development and growth. To some extent, even data quality becomes an issue.

Methodologies for estimating economic impact of higher education, typically have included, the previously mentioned macroeconomic growth accounting, based on gross domestic product (GDP); net present value (NPV) and rate of return analysis.

1. *Macroeconomic Growth Accounting*

Output is determined by three factors of production: land, labour and physical capital. Labour is assumed two-dimensional, quantity and quality (Pencavel, 1991). Quantity measurement indicators may include number of employees or size of the workforce and average hours worked, and the quality dimension, schooling attainments of the labour force. Measurement indicators, in particular proxies for skills and competencies have included, education credentials or levels of educational attainment, years of schooling and even gross enrolment rates. There are however challenges with this tool of estimation.

Limitations of the GDP Measure: GDP does not capture externalities. The spill-over benefits (or costs) resulting from the production or consumption of something into areas unintended by that production or consumption. Authors agree that externalities are difficult to identify and even more difficult to measure. For instance scientific and

technological innovations derived from research undertaken by higher education institutions, the sweeping and enduring impact such innovations might have across economic sectors. Or the spill-over when increased skills of persons contribute not only to their own higher productivity but also to other inputs that might become more productive due to benefits derived from those higher skilled persons.

Appropriateness of GDP: Education is neither clearly a primary input nor necessarily a final good. It is instead an intermediate input that is also produced through labour and capital. The educational system influences and is influenced by the rate and nature of economic growth. Pencavel (1991) explains that since output of educational system is not imposed exogenously on the economy, that it is reasonable to deduce that higher education's contribution to economic growth is not well defined.

Limitations of Estimations of Education Quality: Concerns regarding proxies for skills and knowledge.

- Individualised emphasis of human capital obscures the reality that most economic activity is actually executed by groups of individuals, a concept defined as 'organisational capital'.
- Use of educational attainment levels misleadingly promotes the notion of human capital as an homogenous "once and for all" static bundle of skills (OECD 2001). Similarly, years of schooling, and "the assumption that a year of schooling can be treated as uniform in terms of what is learned regardless of when, where and at what age it occurs" (Wolf, 2004).
- Use of education levels, particularly in the case of higher education, gives way to the conceptualisation of credentialing. Arguably, credentials do not necessarily reflect actual ability, skills or capabilities. Credentials are one way that the labour market regulates access to jobs and opportunities. But the indicator alone in this broader context provides neither measure of quality nor the relevance of the schooling attainment.
- For these reasons gross enrolment rates are also a misleading indicator, beyond their more specific indication of participation in the subsector.
- Credentials also do not capture human capital formation independent of the formal education system. Like informal or industry training and experience.

Lutz et al (2008) address these shortcomings in part, by reconstructing educational attainment distributions by age and gender. Each educational category [no education, primary education, secondary and tertiary education] is distributed across 5-year age groups of men and women. This method allows consistency of educational categories over time and consideration for differential mortality. The effect of education on labour force participation is assumed to be specific to each age and educational group. Human

capital then enters production as differentiated labour force inputs. The findings by Lutz et al (2008) using this reconstruction maintains the position that more education leads to higher individual incomes but adds the contention that higher education is a necessary precondition for long term growth.

2. *Net Present Value*

NPV determinations permit comparisons of an estimated stream of benefits to an estimated stream of costs by a discounting process. In the case of higher education, the costs are typically incurred early in an individual's life, on average over a 3 – 5 year period while benefits accrue over one's lifetime. In this instance, the present value of a projected stream of net additional earnings due to additional education and training, less the costs of investing in this additional education and training, over a life cycle, is discounted by some social rate of return and aggregated on a projected labour market. The derived measure estimates the value of human capital (OECD, 2001). Cited challenges of this measure have included:

- Determination of the discount rate (Psacharopoulos, 1972), and the basis and scope by which a social rate of return might aptly serve these purposes.
- Earnings may be an overstated indicator for higher education impact, since earnings are influenced by a number of other factors; including, job training and experience, individual ability, cognitive skills, age and other attributes.
- The sheer implausibility that specific contributions of higher education can be distinguished and isolated from these other factors in earnings.
- The measure does not account for non-economic benefits accruing to society more generally.

3. *Rate of Return Analysis*

The NPV method gives way to rate of return analysis; the rate of interest that equates streams of benefits to streams of costs, or specifically, the rate that sets the net present value to zero. Returns may be characterised as private and social. The private rate of return to higher education is based on individual costs and after-tax earnings over a lifetime. In short, what an individual pays and receives directly. The social rate of return to higher education is an attempt at capturing the wider societal perspective. Benefits are gross of tax and costs and are an intended comprehensive measure, including for instance subsidies paid in support of higher education. Challenges with the return measures include:

- Calculated social returns are ostensibly a limited measure since they do not capture externalities.
- Restricted measure of individual value since limited to the higher earnings potential and by extension, projected additional tax incomes derived from those higher earnings that are redistributed to society.

- Returns do not distinguish the impact of university based research, which has sweeping socioeconomic benefits.
- Such conventional estimates of return fail to accurately portray other components of social value added, like job creation, good economic and political governance and increased entrepreneurship.
- The assumption that individual earnings reflects individual marginal product is flawed (Wolf 2004). Wolf cites the hourly legal fee of the lawyer and the salaried civil servant pay, as contradictions to this assumption. The hourly rate for significantly comparable legal services can vary tremendously on a range of factors other than actual output; and public service salaries tend to be based less on education and performance and influenced more by government policy, union/industrial group pressures and generally the imposed salary scales and defined incremental pay rates that tend to somewhat homogenise individual earnings.
- Suggestion that education is perfectly correlated with innate ability, since the earnings measure does not take into account other contributing attributes of the individual.

Summary Literature Findings

There are common themes and contentions underpinning the literature that are explained by intuitive reasoning, and broadly supported by empirical findings which although imprecise in areas and not without challenges, do still help shape the plausibility of these themes and contentions. Findings maintain the assertion that knowledge is a principal input and critical driver of economic development and a prominent factor in promoting sustainable growth. Thus education, specifically higher education, arguably the new general standard in today's economy, is a core component to cultivating the kinds of human capital needed to meet the demands of development. Higher education directly influences national productivity and thus higher education institutions support economic growth. Higher education also supports enhanced personal wellbeing, greater social cohesion and is integral in building the human capital required to build the institutions regarded as essential factors of development.

Higher education is particularly important within the developing country context, where returns to higher education tend to be higher than for industrial countries. So much so the literature widely contends that failure to build effective higher education systems and properly coordinate higher education objectives with larger national development goals could be the difference in development, and lead to widening of the gap of existing disparities among and between developed and developing nations. Although empirical findings may seem soft, authors however are deliberate in their reasoning and precise in their conclusions. A perhaps fitting summation that captures the general essence of the literature comes from the World Bank and UNESCO (2000) that "while we may not be able to establish causality, we cannot argue

the ‘growth promoting’ ‘promotional’ value and conducivity of higher education to development, specifically economic development”.

AUTHOR’S PROFILE

An Economist by profession, Ms. Fraser is a proven researcher and analyst. The founding Principal of the Vivian Group, her career achievements cross key sectors of the Bahamian economy, including, Higher Education, Tourism, Financial Services and the Electronic Communications Sector, in core responsibility areas of administration, policy and regulation. At The College of The Bahamas she was the Associate Vice President with responsibility for External Affairs and a part time faculty member in the School of Business; at the Ministry of Tourism and Aviation she was the Director for Onshore Communications; while at The Central Bank of The Bahamas, she held various positions including Economist and Assistant Manager of the Bank’s Research Department; at the Utilities Regulation and Competition Authority she was the Corporate and Consumer Relations Manager.

Trained by the International Monetary Fund (IMF), The World Bank, The Bank of England, The Commonwealth Secretariat, The Centre for Latin American Monetary Studies (CEMLA) and the University of Florida’s Public Utility Research Center, she holds a Master of Arts degree in Economic Development and Policy Analysis from the University of Nottingham (UK), a Bachelor of Science degree in Economics and Finance from Barry University (USA), and an Associate of Arts degree in Pure and Applied Mathematics from The College of The Bahamas. Ms. Fraser has a postgraduate Diploma in Financial Economics from the University of London and a certificate from the London School of Economics and Political Science for studies in Unemployment, Inequality and the Welfare State and Economic Perspectives on Society. She is currently completing a Doctorate in Business Administration degree (DBA) with the University of Bath (UK).

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