ECONOMIC TRANSFORMATION: THE ROLE OF TECHNOLOGY AND HUMAN CAPITAL IN THE CARIBBEAN, ***A LA*** THE LEWIS TRADITION.*

By

S. B. Jones-Hendrickson
Professor of Economics
University of the Virgin Islands
St. Croix, VI. 00850
sjonesh@uvi.edu;
sjonesh@yahoo.com

*Paper prepared for *The **40th Annual Monetary Studies Conference,*** Basseterre, St. Kitts, November, 11th-14th, 2008.

[Cheryl Jeremiah-Ambrose, M.A., Education,
St. Croix Central High, School, St. Croix, VI 00850
mrsambrose2003@yahoo.com was my research assistant on this paper].

ECONOMIC TRANSFORMATION: THE ROLE OF TECHNOLOGY AND HUMAN CAPITAL IN THE CARIBBEAN, ***A LA*** THE LEWIS TRADITION.

Abstract:

This paper will examine the role of technology and human capital in economic transformation in the Caribbean. While the analysis will be a conceptual one, going back to the founding fathers of economics, the discussions will be anchored in the works of Nobel Laureate, Sir W. Arthur Lewis. The essence of the paper will be so structured that developments in technology and human capital around the world, generally, and in the Caribbean, specifically, will be linked in a symbiotic relationship to provide a clear understanding that economic transformation must, of necessity, depend on these two variables as the linchpin for the nations/countries/islands/states in the Caribbean region. The methodology developed in the paper should provide useful guidelines for countries on the cusp of economic transformation and those contemplating economic transformation.

INTRODUCTION:

It is fitting that we celebrate, in this conference, the memory of Sir Arthur Lewis and at the same time commemorate the 60th anniversary of the University of the West Indies. It is also fitting that we honor these two giants in the context of the regional program of Monetary Studies, a Caribbean institution that itself is worthy of note and adulation. Furthermore, it is a signal tribute that we are here in St. Kitts and Nevis an OECS state because, indeed, one of Sir Arthur's lasting tributes was to see the development ***Little Eight*** countries in the Eastern Caribbean. The OECS and, its monetary arm, the Eastern

Caribbean Central Bank could best be seen as an outgrowth of the thoughts of Sir Arthur Lewis in moving the Little Eight countries from agony to some semblance of ecstasy. Much has happened in the OECS and the wider Caribbean. But much needs to be done. Thus our discussion in this paper is centered on some of the many ideas that need to be done in the area of technology and education.

In this paper we will focus on ***Economic Transformation, the Role of Technology and Human Capital a la the Lewis Tradition***. We will cover four sections in this paper:

1. An eclectic review of development strategies in the Caribbean.
2. A minimal focus on technology in our development strategies.
3. A minimal reference to the role of human capital in economic development.
4. The need to centralize technology and human capital in economic transformation, given the new world order.

We will conclude with some key points relative to where we ought to go as a region, if our countries in the Caribbean are to motor along a given economic transformational path in the coming years.

Before we proceed in section one we want to cite a central point in one of Sir Arthur Lewis' work (1955). That point will form the backdrop of our paper. In that seminal work, as was stated by Jones-Hendrickson (2006a:3) in the 2006 Sir Arthur Lewis Memorial Lecture in St. Lucia:

> (Arthur Lewis)… contended that successful development in our part of the world will, ***ceteris paribus***, depend more principally on the quality of the human resources available than on mere accumulation of traditional inputs. Hence, education and training are of paramount importance in his schema of development. He saw the accumulation of knowledge and the expansion and upgrading of our educational systems as of central moment in order to provide the skilled labor force for our region.

Contextualized in its broadest sense, this idea of Sir Arthur is his vision that puts education and technology as pivotal going forward in our path of the world. We will hold this idea in focus as we discuss the twin concepts of technology and education in the idea of economic transformation in the Caribbean.

AN ECLECTIC REVIEW OF DEVELOPMENT STRATEGIES IN THE CARIBBEAN

At the end of World War II, the notion of economic development took center stage in the Caribbean. Our countries were still colonies for the most part, but it was evident the colonial overlords wanted to get us out of their hair and put us onto some paths of a ***Rostovian Take-off***. This, as we know, was predicated on the ideas developed by W.W. Rostow (1960) in ***The Stages of Economic Growth: A Non-Communist Manifesto***. The five stages were:

- The traditional society;
- Preconditions to take-off;
- Take-off;
- Drive to maturity;
- Age of high mass consumption.

One of the major flaws of this schema was the linearity of the argument. In systems where there are dynamic interactions, the Rostovian take-off cannot work. Rostow's model was a structuralist model, but its structure did not fit all of the societies.

In the Caribbean we developed our breed of Economists to tackle some of what we had to do to get where we wanted to go. The leading Economist was Arthur Lewis who, in two seminal articles in ***Caribbean Economic Review*** in December 1949 and May 1950, set out a series of ideas centering on the inflow of capital in the Caribbean. Lewis

was of the distinct view that the inflow of capital would generate the requisite profits and the enabling savings to assist in the development of the skills necessary for our people to put in process, self-sustaining growth. This was a prescription for industrial development. Called by many names, “industrialization by invitation,” became the general nomenclature for this Lewis idea. Even this idea had its detractors and re-shapers. Thus it was William Demas (1965) who argued that size of countries made a fundamental difference in their development trajectory. To Demas, import substitution was of central moment if the region were to achieve the economic integration that was talked about but was not fully practiced.

Whatever were the shortcomings of the Lewis and Demas suggestions, it can be argued that there were instances of growth. Unfortunately that growth was oft times a kind of growth that lacked the attendant development. Imbalances, distortions and inequities still prevailed in many countries. Even commentators who were in favor of the development argued that changes were necessary. The Commonwealth Caribbean Regional Secretariat [CCRS] noted in 1972 that the growth that was taking place was external to the region; that it was growth without including local talent, entrepreneurial skills, capital and the full links to the local economy. It was “…growth resting on foreign rather than

indigenous technological base; and (it was) growth accompanied by imported consumption patterns." [CCRS, 1972: 14].

Just before the Demas notion was fully anchored in the psyche of the region, Lloyd Best (1971: 29) questioned the foundations of the Demas thesis and contended that Demas' thesis did not take into consideration that "smallness necessarily places economies at a disadvantage in the exploitation of their own endowment of resources." This challenge of Best spawned a set of questions and answers from a group of Caribbean economists who were dubbed the New World Group. Along with Lloyd Best, there were George Beckford, C.Y. Thomas, Kari Levitt, Norman Girvan, Havelock Brewester, Owen Jefferson, Al Francis and others. They set out to carve niches in the body economics of the region. Many of their works were micro-theoretic in nature, even though they were geared to some forms of economic transformation.

In the 1970's and 1980's as the world, according to the USA, turned on the Caribbean, much of the theoretical and practical suggestions of Caribbean economists and political scientists, like Carl Stone, Eddie Greene and others, were spawned in a neo-liberalism. The market mechanism took precedence. As systems in the East and West waxed or

waned, we turned to policies and strategies of the International Monetary Fund or the World Bank. By 1980 and into 1982, the international recession slammed our economies to such an extent that all of our primary products were in chaos. We were all subjected to the triple whammy: debt crisis, fiscal crisis and balance of payments deficits. The IMF assumed all kinds of sobriquet in the Caribbean. Many of the names were not for the faint hearted.

We were “naftarized”; we were filtered through the Caribbean Basin Initiative and the Enterprise for the Americas; we were told it is a ***Time for Action***, by a group of Caribbean thinkers, also known as “the wise men;” we were told to seize the time. The time to seize was once again put in a cauldron of external making: we were to be part of the FTAA; we were to fall under the rules and rubric of the WTO; we were to protect our Intellectual Property Rights through World Intellectual Property Organization. Within recent times we have even put forward the notion that capital markets can be the catalysts for growth and development in the Caribbean (Jones-Hendrickson, 2007). All of these geo-strategic moves were, no doubt, genuine. But as it could be seen, little focus was placed on the world according to GARP.

The acronym GARP has many meanings: it could be a General Axiom of Revealed Preference; it could be a Global Association of Risk Professionals, or it could be ***Growth at Reasonable Price***. The most laudable concept of the term was sourced in the 1978 novel by John Irving with the same name, ***The World According to GARP***. For us in the Caribbean, the GARP had to be ***Growth At Reasonable Price***. But what we now have is a world in a globalized space. This brings us to a scenario where transnational capital dominates the world in the new global order; where hedge funds, Monte Carlo techniques, swaps, arbitrage, asymmetric information, adverse selection, moral hazard, Basel I and II, all dominate our thinking. And today our banks and indeed our countries would walk a mile for a CAMEL rating. That is, ***Capital adequacy***, ***Asset quality***; ***Management Earnings***; ***Liquidity*** and ***Sensitivity to market risk***. As we seek GARP, growth at a reasonable price, we have to be sensitive to the world around us and develop mechanisms to use technology and human capital. It would seem that we have to carve out our niche in the new era of globalization. This, to us, is what Sir Arthur may have been talking about when he noted that the accumulation of knowledge and the expansion and upgrading of our educational systems are of central moment in order to provide the skilled labor force for our region.

MINIMAL FOCUS ON TECHNOLOGY IN OUR DEVELOPMENT STRATEGIES

In the entire multitude of literature about what we should and should not do in the Caribbean, there was a minimal focus in our development strategies in the Caribbean. In a paper Jones-Hendrickson presented in 2000 in St. Kitts entitled “Human Resources Development in the Organization of Eastern Caribbean States,” and reprinted in Jones-Hendrickson (2006: 118-130), he focused on three areas of note, namely “health, education, science and technology.” The paper was delivered at a symposium entitled “Small States: Problems and Opportunities in a World of rapid Change.” At that time it was felt by many that education and technology were pivotal to the development in the region. But indeed not much was said beyond that conference in any sustained manner. By way of introduction, Jones-Hendrickson (2006:126) noted:

> “Given the rapidity with which the world is changing, the OECS leadership has to position the nationals of the OECS on a scientific and technological plain that will prepare the nationals to produce successfully in a competitive environment. From the nature of science and technology today, it is clear that a greater percentage of the international income is going to those countries that carved out a niche for themselves on the scientific and technological frontier.

That notion was of central moment eight years ago. The notion is even more crucial today. If that notion were two standard deviations from the mean then, it has to be placed at the mean today. If our countries are to benefit from economic transformation in light of the new world order, best characterized as globalization, then technology has to be it. Technology cannot be thought of as a dense idea of which we know little or know nothing. In the same article, Jones-Hendrickson (2006:126) contented that the OECS leadership must focus on six principal features along the scientific and technological frontier. These features are:

1. The need to maintain a work force with adequate technological skills.
2. The problem of displaced workers deriving from technological advancements
3. The recognition that the availability of most technological jobs will be in non-technical areas
4. Ethical problems relative to scientific and technological advances, particularly in biotechnology
5. The pervasive effect that computers will have on the labor force and the workplace, and
6. The massive advances that will occur in micro-electronics, biotechnology, telecommunications and computers (hardware and software).

These six principles are as applicable to the OECS as they are to the wider Caribbean. The region has lost its comparative advantage for its primary products. It is struggling to build a comparative advantage in services, namely in the area of tourism, banking and off-shore investment services. Thus, as we move forward, we have to take into consideration a point that was made by the United Nations Economic Commission for Latin America and the Caribbean, the Caribbean Development and Co-operation Committee (UN-ECLAC-CDCC). In an article in its periodical, ***Focus*** (1991:8-9), the point was made:

> The new technologies (of the world) are leading to greater capital and skill intensity in production, especially the latter. Unless immediate attention is focused on massive upgrading of (the) population quality in all its aspects, education, training, health, nutrition, housing and all the areas that enhance (the) quality of life, these technologies may well become out of reach of our (Caribbean) regional economies.

This is a very vital point. Yet we operate as if the technology that we use, that ***Windows***, and ***Instant Messaging, the-commerce, the You Tube, the Face Book, and the rest*** that we are involved in, will all benefit us if we merely use

them and know nothing about them and what they could do for our region's development. It is as if we are acquiescing to everything that is coming from the North. We seem to be compromising with all of the external forces and machinations. It appears sometimes that we get sidelined by International lending institutions who see us as not fulfilling our obligations, as stipulated by the rules and regulations of the big brothers of the north. What must we do?

Former Prime Minister of Barbados, Owen Arthur, in a distinguished lecture at the Institute of International Relations at UWI, Trinidad, noted:

> …The Caribbean countries, singly and as a group, must make the transition from the old age of preferences to the new age of reciprocity in its international economic relationships….It must put in place mechanisms that can exploit the market opportunities which are being created by the international liberalization of trade and the formation of mega trade blocks. (Arthur, 1996: 47-48).

Thus, there must be now, some rethinking of the questions of trade and the formation of mega-blocks in light of the world-wide financial crisis, It is pivotal that the Caribbean carve out its own ***matrix*** in the globalization space. In that

space, technology and human capital (or education, narrowly defined), must be the rows and columns of that ***matrix***.

When we say there was minimal focus on technology in our development strategies, we are not saying that nothing completely was mentioned or even discussed at a higher level about technology in the region. In the 1980's Norman Girvan and Trevor Farrell were the key actors among a group of regional economists who undertook a large study on technology policies with a decided emphasis on the Caribbean. Girvan (1983) is a signal record of that study. Like a companion study on public enterprises in the Caribbean, the Technology study related to the transfer of technology and the responsiveness or lack of responsiveness of transnational corporations. Girvan (1984), in ***Transnational Corporation and Transfer of Technology arrangements in Selected Sectors,*** was concerned with the transfer of technology and its impact on the region and less so with the acquisition of the technology, and the possibility of the region moving forward.

Thus, there were some discussions on the issue of technology. But it was not the kind of technology and technological advance that we require today if we are to motor up our countries along a more defined path for

economic transformation. Let us now turn to the question of human capital and its reference or lack of reference in the Caribbean literature.

MINIMAL REFERENCE TO THE ROLE OF HUMAN CAPITAL IN ECONOMIC DEVELOPMENT IN THE CARIBBEAN.

In many respects when the idea of human capital is mentioned, it is somewhat circumscribed in the context of education. Pragmatically, it is the stock of skills and knowledge in a transformative way that permit us to work and produce something of economic value. This fungible resource, namely a resource that is homogeneous and readily interchangeable, must be the idea that W. Arthur Lewis (1955: 164-165) spoke about. His focus was on knowledge. Specifically he saw the "…proximate causes of economic growth [as] the effort to economize, the accumulation of knowledge, and the accumulation of capital." (Lewis, 1955: 164). Continued Lewis (1955:164):

> Knowledge grows because man is by nature curious and experimental. His curiosity causes him to enquire into things because they attract his attention, even though they may not be immediately relevant to his practical problems. And his desire to experiment is

> also greatly stimulated by the practical tasks at hand, and the problems they pose for solution.

This passage, to us, is central to the notion of human capital. It falls under the umbrella of the four types of capital that Adam Smith discussed in ***The Wealth of Nations***. Smith discussed: (a) useful machines; (b) instruments of trade; (c) buildings as a means of procuring revenue; and (d), human capital. For all practical purposes, however, it was Arthur Lewis who first gave the juice to the idea of human capital in his celebrated 1954 article on "Economic Development with Unlimited Supplies of Labour."

The term "human capital' was under a cloud until four years later, in 1958, when the Polish-born, American economist, Jacob Mincer orchestrated a lead article in the ***Journal of Political Economy***. The article, "Investment in Human Capital and Personal Income Distribution," set off a new trend from what was then the "Chicago School of Economics." Mincer and Gary Becker then took the baton and started serious discussions on human capital. Hence when Becker's book ***Human Capital*** was published in 1964, the academy had a new theory of economic development on its hands. The work of these "human capital economists" was useful but, in a fundamental way, it was

Arthur Lewis who, for us here in the region, first hinted and introduced the concept of human capital.

In the 1970's there was not much discussion in the Caribbean on the concept of human capital and economic development. A great deal existed about education and the development options. Arising out of a Master's thesis at Illinois State University, Jones-Hendrickson (1970) started to use the concept of economic transformation and human capital. While he was a Lecturer in Economics in the Department of Economics, UWI, Mona campus, he published an article in 1975 ***Caribbean Studies*** on the topic. The article entitled, "The Role of Education of Education in the Economic Transformation of the State of St. Kitts-Nevis-Anguilla,' (Jones-Hendrickson, 1975: 89-107), delineated that education and, in train, human capital, could play a central role in economic transformation.

Even though Theodore W. Schultz (1963, 1971), co-winner with Sir Arthur Lewis of the Nobel Prize in Economics in 1979, had discussed the "economic value of education", and 'investment in human capital," and even though others like Harbison and Myers (1965) had earlier expanded the notion in their seminal work, ***Education, Manpower and Economic Growth***, and even though Mincer and Becker continued to put forward some more solid ideas on the

human capital front, many economists still felt that this new concept was not applicable to so-called developing countries. Thus, D.C. McClelland (1966) raised the question about the links between education, and in line human capital, and economic growth in his seminal article: “Does Education Accelerate Economic Growth?”

Notwithstanding this thrust or mistrust, Jones-Hendrickson continued the discussion along the human capital (education and development) line. Central to his conceit was the idea that human capital had to play a pivotal in the region was the view put by Sir Arthur Lewis (1955: 180):

> If new knowledge is to be accepted and applied to production, it must be profitable as well as new. It takes effort to acquire knowledge, and to apply it may require both extra resources and also extra willingness to bear risks. ***The application of knowledge*** therefore demands an institutional pattern which associates differential effort with differential reward. [Emphasis added].

Kernel to this citation is what we have liberally interpreted as human capital in the context of technology.

THE NEED TO CENTRALIZE TECHNOLGY AND HUMAN CAPITAL IN ECONOMIC TRANSFORMATION.

Within recent times human capital has taken new flight, and in a sense it has new links to technology. We now turn, therefore, to the need to centralize technology and human capital in economic transformation, given the new issues of globalization.

In the recent special issue of the ***Journal of Eastern Caribbean Studies***, volume 32, No. 4, December, 2007, there are series of articles devoted to Human Resources. This is a welcomed development. The issue, in many respects, centers on human resources development and management in the Caribbean. What we will do at this juncture is to focus on technology and human capital as the ***sine qua non*** for economic transformation in the Caribbean.

Andrew Downes (2007:1) cites Harbison (1973:3), who contends that human resources "constitute the ultimate basis for the wealth of nations. Capital and natural resources are passive factors of production; human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organizations, and carry forward national development."

Germane to this citation is the fact that today if our Caribbean countries are to get on the bandwagon of economic transformation in a meaningful way, technology and human capital must be used in a fundamental manner. Eddie Greene (2007:69-90) contends that we have to "reconfigure human resource development in the Caribbean beyond the global marketplace." This is a key idea. Given the nature of globalization, we have to so structure or workplace and our workforce that technology and human capital have to be actively mixed to achieve a very high level of economic transformation. The challenge and the priority to us in the region are sourced in what Davis Ferranti, et al. (2003) notes that we have to do, namely 'close the gap in education and technology.' We in the region have to close the gap in technology and human capital, if for no other reason, that we cannot say "stop the world we want to get off." There will be impediments to this gap. But if we fail to close the gap we will be left farther behind in the economic transformation process. So how we close the gap?

In Jones-Hendrickson (2004: 5-6) the point was made:

> "Higher Education, (tertiary education, if you wish), used the old Cartesian system, the linear dimension in thinking…(and) permitted a linking of education to the economy…Today, however, …the new economy is

> premised on a new paradigm, with thematic variations of supply and demand, but anchored in the e-economy space. The new economy is not the old mortar and bricks variety; it is ***an economy of bytes and clicks***… bytes of computer space and clicks of the mouse, that ergonomic tool that has made repetition almost a non-repetitive endeavor. The new economy is one that is rooted in a series of (concentric) forces of new technologies, the uniformity of globalization, the centrifugal forces of assets deriving from brand-name (products), unique relationships, intellectual property rights, and the speed of adoption. Tertiary education has to adopt the new accounting rules; it has to engage in new cutting-edge premises; it has to interrogate the new moves leading to new value added in the society and the economy."

In an outstanding article by two Canadian authors, Julie Turcotte and Lori Whewell Rennison (2004), they argued that the single most vital development in the workplace in Canada in recent years has been "the massive introduction of information and communication technologies (ICT)." [http://www.csls.ca.ipm/9/turcotte_rennison-e.pdf]. This is what some writers and commentators have been saying in the Caribbean. The facts seem to justify why we have to move in that direction, and move decisively.

Whewell and Rennison of Finance Canada found that given the massive use of ICT, the following things were observed in the Canadian workforce: “They found that productivity is higher; the more intensively technology is used in the firm; the greater the proportion of university educated workers; the greater the participation of workers in formal training programs, and the greater the proportion of workers who receive computer training…[Finally, they noted that]… computer skills training can augment the qualifications of lower-skilled workers and consequently boost firm productivity.” [http://www.csls.ca.ipm/9/turcotte_rennison-e.pdf].

Lynch and Black (2000) make a similar case in their article ‘what is driving the new economy?’ They argue that computer use enhances productivity in the workplace, and this is especially true when the computer use is among non-managers.

The World Bank’s Commission on Growth and Development, in its report ***The Growth Report: Strategies for sustained Growth and Inclusive Development,*** made some incisive points when the authors note, on page 41, that:

> “In all cases of sustained, high growth, the economies (of ***the so-called developing countries,*** our addition

> and emphasis) have rapidly absorbed knowhow, technology and, more generally, knowledge from the rest of the world. These economies did not have to originate much of this knowledge, but they did have to assimilate it at a tremendous pace. That we know. What we did not know – at least not a well as we would like – is precisely how they did it, and how policy makers can hurry the process along….Knowledge acquired from the global economy is thus the fundamental basis of economic catch-up and sustained growth." [***Commission on Growth and Development***, 2008: 41].

It is clear, therefore, what route we in the Caribbean have to take. Having lost our comparative advantage in agriculture, we now have to move headlong, but with deliberate haste, into scenarios that permit us to combine technology and human capital to boost our productivity in the region. Of course, there is the question of how fast we would move. Some authors such as Benhabib and Spiegel (2002) contend that there is a type of catch-up model of technology diffusion that technology deficient countries have to contend with going forward. These are issues that all decision-makers in the region must take into account as they strategize about technology and human capital; as they plan to make ICT the norm in economic planning, and as

they plan how to interrogate the new scenarios of economic transformation.

In the final analysis, we end by noting some points made by W. Michael Fox and Richard Alm of the Federal Reserve Bank of Dallas 2007 ***Annual Report***, entitled Opportunity Knocks. Fox and Alm in their article entitled "Opportunity Knocks: Selling Our Services to the World," note: "An increasingly integrated world economy promotes efficient production, lower costs, and speeds growth and fosters better economic policies. [Further, they argue]…The Internet, satellites and fiber-optic transmissions lines have bound our economies together by making it cheaper and easier to collect, process and distribute information…" (Fox & Alm, 2007: 6).

These ideas are of central moment as the region assumes a plan to make technology and human capital the transformative agents in the economic transformation of the Caribbean. The fact that globalization is now making all of the economies linked, is now being clearly demonstrated by the global melt-down in the financial space. By the same token, the evidence is clear that technology and human capital, and dare we say, quality human capital, are the necessary and sufficient ingredients to get us on a new path of economic transformation. The cost of the technology, the

speed with which we have to adopt the technology, how fast we catch-up, and all of the other myriad dynamics of this new approach to development in the region, are things that Sir W Arthur Lewis would have wanted us to pay attention to, as we contend with out destiny of economic transformation using technology and human capital.

In the final analysis, we still have to pay attention to the six features listed earlier, namely:

(1)The need to maintain a work force with adequate technological skills.

(2) The problem of displaced workers deriving from technological advancements

(3) The recognition that the availability of most technological jobs will be in non-technical areas

(4) Ethical problems relative to scientific and technological advances, particularly in biotechnology

(5) The pervasive effect that computers will have on the labor force and the workplace, and finally,

(6) The massive advances that will occur in micro-electronics, biotechnology, telecommunications and computers (hardware and software) [as we experience the economic transformation].

REFERENCES

Arthur, Owen, (1996): "The New Realities of Caribbean International Economic Relations," Distinguish Lecture in the Distinguished Lecture Series, Institute of International Relations, University of the West Indies, St. Augustine, Trinidad, April 15. 9 (not published).

Benhabib, Jess & Mark Spiegel (2002): "Human Capital and Technology Diffusion," ***Working Papers in Applied Economic Theory***, 2002-2003, Federal Reserve Bank of San Francisco.

Best, Lloyd, (1971), "Size and Survival," in Girvan and Jefferson (Eds), ***Readings in the Political Economy of the Caribbean,*** Kingston, Jamaica.

Black, Sandra E. & Lisa M. Lynch (2000): "What's driving the new economy: The benefits of Workplace Innovation," ***NBER Working Papers*** 7479, National Bureau of Economic Research, Inc.

Commission on Growth and Development, (2008): ***The Growth Report: Strategies for Sustained Growth and Inclusive Development***, Washington, D.C., The International Bank for Reconstruction and Development/The World Bank.

Commonwealth Caribbean Regional Secretariat, CCRS, (1972): ***From CARIFTA to Caribbean Community***, (Georgetown, Guyana).

Demas, William, (1965): ***The Economics of Development in Small Countries with Special Reference to the Caribbean***, Montreal:

Downes, Andrew (2007): "Human Resource Development and management in the Caribbean," ***Journal of***

Eastern Caribbean Studies, vol. 32, no. 4, December, pp.1-7.

Ferranti, Davis et al (2003): ***Closing the Gap in Education and Technology***, World Bank, Latin American and Caribbean Studies.

Girvan, Norman and Owen Jefferson (1971): ***Readings in the Political Economy of the Caribbean,*** (Kingston, Jamaica, New World Group).

Girvan, Norman (1983): ***Technology Polices for Small Developing Economies***: ***A Study of the Caribbean***, (UWI: Jamaica, Institute of Social and Economic Research).

Girvan, Norman (1984): ***Transnational Corporation and Transfer of Technology Arrangements in Selected Sectors,*** (UW: Jamaica, Institute of Social and Economic Research).

Greene, Edward (2007): "Reconfiguring Human Resources development in the Caribbean: Beyond the Global Marketplace," ***Journal of Eastern Caribbean Studies***, vol. 32, no. 4, pp. 69-90.

Harbison, F. (1973): ***Human Resources as the Wealth of Nations***, (New York, Oxford University Press.

Harbison, F. and C. Myers, (1965): ***Education, Manpower and Economic Growth,*** (New York: McGraw-Hill).

Jones-Hendrickson, S. B. (1970): "The Role of Education in the Economic Development of the State of St. Kitts-Nevis-Anguilla, 1950-1969," Master's Thesis, Illinois State University.

Jones-Hendrickson, S.B. (1975): "The Role of Education in the Economic Transformation of the State of St. Kitts-

Nevis-Anguilla, 1950-1969," Caribbean Studies, Institute of Caribbean Studies, UPR, Puerto Rico, vol. 14, No. 4, January.

Jones-Hendrickson, S. B., (2004). "Fostering a Culture of Learning: The Challenges and the Opportunities," Keynote Address delivered at the Clarence Fitzroy Bryant College 16th Annual Commencement Ceremony, November 16, 2004, Basseterre, St. Kitts.

Jones-Hendrickson, S. B. (2006): ***Essays on the Organization of Eastern Caribbean States (OECS) Economies***, (New York: iUniverse, Inc).

Jones-Hendrickson, S. B. (2006a): "Unlocking the Potential within: An Arthur Lewis Perspective." [The Sir Arthur Lewis Memorial Lecture**]. D**elivered on January 27th, 2006 at the Sir W. Arthur Lewis Community College, Castries, St. Lucia.

Jones-Hendrickson, S. B. (2007): "Caribbean capital markets: A Catalyst for Growth and Development," Paper prepared for the Fourth Annual Caribbean Group of Securities Regulators Conference, **October 25-26, 2007**, Basseterre, St. Kitts and Nevis, under the theme: ***"The Role of Capital Markets in the Development of the Caribbean: Benefits and Challenges."***

Lewis, W. Arthur, (1949): "Industrial Development in Puerto Rico," ***Caribbean Economic Review***, I, pp. 153-176.

Lewis, W. Arthur, (1950): "The Industrialization of the British West Indies," ***Caribbean Economic Review***, II, pp.1-61.

Lewis, W. Arthur, (1955): ***Theory of Economic Growth***, (London: George Allen & Unwin, Ltd).

Rostow, W. W. (1960): ***The Stages of Economic Growth: A Non-Communist Manifesto***, (New York: Cambridge University Press).

McClelland, D.C. (1966), "Does Education Accelerate Economic Growth?" ***Economic Development and Cultural Change***, 14, no. 3, April, pp. 257-278.

Turcotte, Julie & Lori Whewell Rennison (2004): "The Link between Technology Use, Human Capital, Productivity and Wages: Firm-Level Evidence," ***International Productivity Monitor***, volume 9, pp. 25-36. [See also, http://www.csls.ca.ipm/9/turcotte_rennison-e.pdf].

United Nations-ECLAC-CDCC, (1991): ***Focus: Quarterly Newsletter of the Caribbean Development and Co-operation Committee***, vol. 12, no. 5, pp.8-9.