THE THEORY OF HUMAN CAPITAL FORMATION: IMPLICATIONS FOR DEVELOPING COUNTRIES

By

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The appearance of yet another article on human capital formation through education needs a preliminary apology. Much has been written on human capital theory or, as the concept is otherwise known, the human investment theory of growth, in the last two decades. Both highly technical articles that are based on a quantitative assessment of the economic returns to education exist as well as massive collections of educational statistics that are, more or less, descriptive rather than analytical. The multiplicity of these articles has led to what is now commonly referred to as the "human investment revolution in economic thought,"[1] which has served as a powerful ideological tool influencing the discussion and actual direction of education policy in many developed and developing countries. The general human capital theory is largely accepted.[2] What is at issue in this paper is the naive and artificial transfer of concepts constructed for one economic reality to a completely different one. It is, therefore, profitable to stop for a moment and look critically at some of the ideas and assumptions lying behind the human capital theory that have been propagated for so long.[3]

Economists have been accused of working with abstract models of "perfect" economies that obey strict mathematical laws. In some cases, such exercises have sharpened the focus of empirical research. In others, theoretical abstraction, when carried to extremes, has been achieved at the expense of real world situations, with the result that the implementation of economic and educational policies have been disastrous in practice. From our own investigations we have been forced to conclude that such is the case with human capital formation through education in many developing nations.

Third World countries are in the grip of an uncontrolled and apparently uncontrollable educational explosion which is draining financial resources to the neglect of other priorities. One of the explanations for this "overinvestment" in education is the imposition[4] by the North and the uncritical adoption[5] by the South, of human capital theory -- a theory generated by and based upon Northern that is, Western, experience and economic needs. The fact that the imposition/adoption of human capital theory has influenced policy decisions on the allocations of resources to the detriment of the Third World countries, where this theory is applied, is a good example of the undesirable consequences accruing from blind acceptance of theories and ideas conceived in the

north. The aim of this paper is to explore the theoretical relevance of human capital theory for the Third World and to examine some implications for educational policies in the developing countries.

The Theory

In a sense, the entire neoclassical theory of growth is a physical investment theory: output per unit of labor increases as a result of growth in the stock of physical capital per worker; so that the rate of growth of output is directly proportional to the rate of physical investment.[6] The objective of increasing the volume of the stock of physical capital dominated investment discussions up till the end of the Second World War. Failure to replicate the success of the Marshall Plan in the developing Third World nations forced economists and policy makers to question the validity of the physical investment theory of capital. Some such evidence was provided by Robert Solow's 1956 article[7] which demonstrated that the neoclassical model of capital could only explain about a third of the observed growth in output, while the remaining two-thirds of growth was the result of some "residual factor." This residual factor was explained as the result of technical progress and improvement in the quality of the labor force.

Broadly speaking, the physical investment explanation of the residual is that investment in physical capital by utilizing new and better technology not only increases the volume of capital stock, but also improves the quality of this stock. As it stands, this explanation neglects the quality improvement of the labor force which was necessary to use the new and better technology.

In attempting to explain the quality improvement of the labor force, the human capital theory or the investment-in-man theory was born. The residual factor is so large because the quality of the labor force has been improving over time, and this has been due directly to more and better relevant education of the labor force. The roots of the human investment revolution lie in the post-World War II era. Although legitimized by requisite references to Adam Smith, Alfred Marshall and Irving Fisher,[8] the human investment theory of growth or the theory of human capital must be credited to Schultz and Becker. These writers were able to develop the macro and micro-economic foundations on which the theory was based.

This new concept of capital formation or accumulation became applicable not only to physical capital but also to a cluster of factors, including nutrition, education, on-the-job training and migration, which has received considerable attention from economists. The common thread among these factors is that they all affect the quality of labor and require present sacrifices to be

able to achieve some future advantages. Put differently, each represents an investment not of the physical type (plant, equipment, etc.,) or financial (money, bonds, etc.), but rather in "human capital."

Theodore W. Schultz's 1960 presidential address to the American Economic Association on "Investment in Human Capital"[9] was an attempt to draw the attention of economists and educational planners to the need of including the acquired abilities of man that augment his productivity as a form of capital, that is, as a form of investment. Schultz's position is to treat education as an investment in man, and regard its outcome as a form of capital.[10]

What sets Schultz and the Chicago School of thought (which he represents) apart is that their theory is much more than a theory stressing the importance of education. It is more of a general theory of capital accumulation. Accordingly,

> *the concept of capital...consists of entities that have the economic property of rendering future services of some value....The distinctive mark of human capital is that it is part of man. It is human because it is embodied in man, and it is capital because it is a source of some future satisfaction or of future earnings or of both.*[11]

Human capital is interpreted more broadly to include the body of knowledge possessed by the population and the capacity and training of the population to use it more effectively. The argument is that expenditure on education and training, improvement in health, greater mobility of the population to take advantage of job opportunities, and research contribute to productivity by raising the quality of the population, and that these outlays yield a continuing return in the future. The general framework of the theory is straightforward and one could hardly quarrel with the idea that quality improvement in labor through education both requires identifiable resources and produces a flow of returns over a period of time. That it is human capital is hardly the issue here. Applying the concept of "capital" to human beings may ease our intuitive understanding, but it fails to specify how this capital in behavior and technological operation comes into being and how it interacts in production with such factors as labor, plant, equipment, and land. Only when such issues are addressed adequately will we be able to specify both the degree and amount of the relevant human capital investments individuals and society should undertake.

The Approaches

Various empirical studies attempting to explain the growth

of the U.S. economy over the first half of the twentieth century came across a relatively large residual which could not be explained by the growth of capital and labor as conventionally measured.[12] It was recognized that the growth of human capital was due in part, to the increases in the amount of education of the labor force. Since then different economic approaches have been formulated to assess the contribution of education to economic growth.

The Forecasting-Manpower Planning Approach which is used to analyze the supply of candidates trained for a specific occupation and the supply of jobs in that occupation is one approach that will not be discussed here because it is not directed in assessing the economic contribution of education. Sobel has discusssed and criticized the considerable attention manpower planning has received in recent years.[13] Bowen discussed the various approaches in his now classic survey of the literature in which he focused his attention on efforts to measure the contribution of education to economic growth.[14]

The first approach Bowen reviews is the simple correlation approach which consists of relating some overall index of educational activity to some index of the level of economic activity.[15] Inter-country comparisons, intertemporal correlations and inter-industry/interfirm correlations are various methods countries can use to evaluate and compare their educational efforts with countries at similar levels of economic development.

The second method of measuring the contribution of education to economic growth is the residual or production function approach which is based on neoclassical marginal productivity theory. The analysis of human capital here consists of delineating the form and magnitude of the relations between inputs (labor and capital), output (national income), and whatever unexplained growth in output that might remain. The residual is attributable to the unspecified inputs, i.e., factors that were not included in the production function. In some studies the character of the production function has been postulated, whereas in others the growth rates of inputs and outputs are measured and compared to estimate the residual -- a method employed by Denison.[16] Denison feels that it is appropriate to distinguish between two main types of contribution of education to growth: 1) those that raise the quality of the labor force and (2) those that increase the stock of knowledge in the population. Notwithstanding some criticisms levelled against the residual approach,[17] Denison's work on the quantitative assessment of the returns to education succeeded in establishing the point very firmly that expenditure on schooling in the United States provides significant returns.

The third approach to estimate the value of education to economic growth is to estimate the "rate of return" (or cost-

benefit) on educational investment. Bowen suggests that one way to do this is to contrast the lifetime earnings of people who have had "more" education with the lifetime earnings of those with "less" education. The difference in lifetime earnings can be expressed as an annual percentage rate of return on the cost involved in obtaining the education.[18] In other words, educational investments are the sum of the costs of operating educational institutions, foregone incomes of students and the incidental costs of attending educational institutions. The return consists of the discounted stream of increased earnings enjoyed by those who are educated.

The direct returns-to-education approach, popularly known as the cost-benefit analysis, is deceptively simple. Economists have done extensive work in calculating the rate of return in both the United States and abroad and their results have been different. These calculations have used different classifications of students, and studies have been based on varied sources of data with varied and numerous assumptions. For example, Miller calculated lifetime income values by level of schooling[20] and finally, expected rates of returns have been calculated on total resource costs basis and sometimes on private resource costs.[21] Despite the limited comparability afforded by these estimates, the conclusion consistently has been that high rates of return to investment in schooling justify society's traditional faith in education.

So far, we have given a bald and brief review of some of the methods currently in use in evaluating the formation of human capital, broadly defined to include education. The baldness can be justified by the need for simplicity and clarity, the brevity by the desire to focus on other important issues surrounding the human capital theory. These approaches suggest that there are diversities in the methodology in assessing the contribution of education to economic growth. The rate of return or the cost-benefit analysis seemed to have attracted the interests of most writers. Becker, De Prano and Nugent have applied this model in estimating the rates of return to different educational investments for whites and non-whites separately in the Northern and Southern states of the U.S.[22] They found the rates of return to be higher for whites than non-whites in the South. They also presented a compendium of rates of return to secondary and university education, private and social, for different countries. With additional evidence provided by Psacharopoulos in the early 1970s, they concluded that the rate of return at these levels was generally higher in the less developed countries than in the developed countries and higher for secondary than for university education.

In any case, and for whatever reasons, substantial discrepancies between private and social rates of return to education

occur, especially so for the developing countries. The implication is obvious, compulsory investment in human capital will result. Since investments in human capital, especially those in education, require long periods of time before the individual and society begin to reap the advantages from schooling, policies in respect to human capital investments must be planned carefully on the basis of relevant criteria. The issue of relevance is very important to the Third World nations who must finance their education from limited resources. Now let us see how the human capital theory applies in concrete cases, i.e., the North vis-à-vis the South. We shall look at some main facts and trends that have contributed to the expansion of formal educational systems in the Third World. Although the evidence is mainly from Africa, the conclusion has wider relevance for other countries in the Third World.

The Expansion of Educational Systems in the Third World

Most of the colonized territories in Asia and Africa won their independence in the post-war period, thus bringing the colonial era to a formal close. It is no accident that the birth of the first development decade in the early 1960s coincided with the birth of the human capital theory and a renewed interest in the economics of education.

The ruling paradigm of the process of economic development rested on the classical-neoclassical view of a world with gradual, marginalist, nondisruptive equilibrating and largely painless change. This optimism regarding the variety, viability and applicability of Western economic models to underdeveloped areas was seen as the means for narrowing the gap between the developed and the developing countries. It was assumed that development was just a matter of equipment that would be obtained and techniques that would be learned -- that is something autonomous, and transferable without pain, or, at least with just a little pain (you can't get something for nothing). In Asia, Latin America, and Africa, it was widely believed that industrial development would follow naturally from the possession of factories with modern equipment and trained managers and workers. The Third World lacked money, trained men and women, and most importantly technology. Supply these assets, so the argument went, and economic development would follow. In other words, development of the Third World was to be attained by means of an economic offensive designed to meet theoretical and ill-defined needs which were arbitrarily determined by the authorities of these new nations and their foreign experts. It was merely a matter of providing capital and training in specialized skills to enable these late developers to explore their own natural resources and thus to eliminate poverty, regardless of its causes.

Seen in this perspective, education became the ideal and cheapest means to modernize the society. In almost all societies

education became and remained a large sector in the economy, one in which expenditure has grown at a very rapid rate and probably will continue to grow during the century. The rise in the number of people engaged in education is most pronounced in the developing countries where almost all governments have adopted, as one of their first priorities, a policy of universal primary education. In the period 1955-1960, many independent Latin American and Asian countries had native cadres of administrators and officials of several kinds. In the same time span, when the bulk of most African countries were about to get their independence, they had considerably fewer people who could take up high positions in various sectors of national life. The schools which were established in Africa were primarily designed to serve the needs of the colonizers, not those of the Africans. Colonial administrators were concerned with the training of literate clerks to staff the lower ranks of the civil service, while missionary education concerned itself with the moral education of Africans as faithful followers of the gospel. Thus, the colonial neglect and/or omission of higher educational institutions restricted greatly the number of Africans who could replace Europeans when they became politically independent. The following figures show the extent to which African enrollment ratio in higher education around 1955-60 fell behind that of Asia and Latin America.[23]

Table I

Higher Education Enrollment Rates in the Third World

Africa	Asia	Latin America
0.53	1.88	2.85

Adapted from Frederick Harbison and Charles A. Myers, *Education, Manpower and Economic Growth*, McGraw-Hill Book Company, New York, 1964, pp. 45-47.

To correct this manpower shortage African governments pledged to Africanize the various sectors of the national life. The seriousness of the pressures for Africanization varied inversely with the level of education attained by the country during independence. For example, Tanzania, where the educational system was not as developed compared to a country such as Egypt, Africanized rapidly. Countries like Ghana and Senegal, with a more solid and longer educational development history, were able to proceed more deliberately. The decision to Africanize was grounded on political and economic considerations. Politically it reflected an understandable effort to correct the neglect or underemphasis of African history and culture. From the economic perspective, more highly educated and trained Africans were needed to meet planned expansion of the modern non-agricultural

sectors. To achieve this objective, African educational output at the primary, secondary, technical and university levels had to be substantially increased.

The magnitude of this expansion is shown by the over optimistic recommendations of five international conferences held in the early 1960s.[24] The long-term plan adopted by the Addis Ababa Conference (May 1961) recommended the introduction of universal, compulsory and free education of six years in the interval between 1961-1980. Enrollments at primary schools by the years 1980-1981 were planned to triple those of 1960-61: from 11,568,000 to 32,808,000. The costs were to rise from 183.4 to 730.3 million dollars.[25] Free primary education was seen here as providing a reservoir of candidates for secondary and higher education and to fulfill the minimum of basic educational requirements for participation in the modern sector of economic life (UNESCO, 1961).

Table II

School Enrollment Targets for Africa

	1960/61	1965/66	1970/71	1980/81
Primary	40	51	71	100
Secondary	3	9	15	23
Higher	0.2	0.2	0.4	2.0

Source: *Final Report, Conference of African States on the Development of Education in Africa* (Addis Ababa: May 1961) UNESCO - UN, Section II, p. 11.

For secondary and higher education the target objectives were not very different. Basically, secondary schools were to provide for approximately 25 percent of primary school graduates, and higher education to provide for 20 percent of secondary school graduates. National income earmarked to finance this education was to be increased from four percent in 1965 to six percent in 1980.[26] By 1965, it appeared that a number of African states had reached and even exceeded the percentage of the gross national product to be expended on education.

Several reasons have been advanced for the massive expansion of formal educational systems in the Third World. The idea that money spent on education is an investment in human capital was not new, but it was in the 1960s that the concept was systematically integrated into the general body of mainstream economic thinking. The reasons given by economists for this expansion are normally demographic changes, increased demand and changes in public policy with regard to education. It was pointed out above that earlier approaches used in assessing the econ-

omic contribution of education went a long way to correlate various measures of economic and educational activity (the so-called simple correlation approach) and to calculate the exact quantitative role of education (the so-called residual approach). These attempts have been severely criticized from a methodological and logical point of view.[27]

Since not much in the way of casual explanation was offered, more precise and new methods were developed, viz., the rates of return and the manpower planning models. The increased demand for education was seen as a demand "derived" from high-income employment opportunities in the modern sector. This was seen as a reflection of a growing economy. In fact, in almost all the nations of the Third World, entry into modern public and private jobs is predicated upon successful completion of the requisite years of education associated with particular jobs, often irrespective of whether or not such educational requirements are really necessary for particular job performance.

The relationship between the demand for education (private and social demand) and the availability of job opportunities in the modern sector becomes very important, especially when both the private and the social cost-benefits of education were being calculated. One innovation of the human capital theory was the development of the concept of a social rate of return to educational expenditure. The logic was that so long as individuals obtained a certain personal or private return by prolonging their education, society as a whole achieved a similar return as a result of higher productivity of more educated people. A problem arises when the private rates diverge from the social rates of return. This will obviously lead to a misallocation of human and financial resources as educational systems must expand to accomodate the increased demand.

The individual payoff is easier to calculate and in the Third World, the private rate of return is enormous. Individuals will continue to demand more education so long as private costs bring high private returns. Social demand for education is self-generating, and the expansion of education is in response to political pressures. Here Ronald Dore's criticism of what he calls "diploma disease" is directly relevant,[28] that is, that educational systems are no longer fulfilling their function. The real purpose of education has been distorted, especially so in the Third World. His thesis is that the more unprofitable a given level of education becomes as a terminal point, the more demand for it increases as an intermediate stage or precondition to the next level of education. In the later stages of development everything is speeded up. For the Third World the imported curriculum is used to qualify for the imported diploma; the diploma is indiscriminately used as an access-card for the job market; as supply of candidates exceeds demand, more

jobs depend on diplomas for entry and this in turn emphasizes examinations at schools and universities at the expense of genuine education.[29]

Randall Collins' *The Credential Society* also supports Dore's thesis.[30] The observed increase in academic attainment might signify nothing in terms of who gets ahead and who doesn't. For him, the greater doses of schooling swallowed up by young people do only two notable things: 1) keep potential employees out of the work force for longer than ever before and 2) increase the influence of the bureaucracies that control higher education. Accordingly, more education to the masses is no guarantee for equal opportunity and no triumph for universal public education. Many countries are re-examining their educational policies and some have as their aim to bring educational investment in line with other sectors of the economy with the overall objective of increasing the rate of economic growth. It's now time to ask ourselves a relevant question: How relevant are Western economic models in the Third World in general and human capital theory in particular?

The Theory in Developing Countries

Numerous charges have been levelled against the role of social science and the social scientist in development studies, especially in their relationship with Third World countries when carrying out research. First, there is the charge of inappropriateness of Western concepts, models and paradigms in understanding the different circumstances pertaining to developing societies. Secondly, there is the charge of intellectual, scientific and cultural imperialism or neocolonialism. Finally, there is the charge of opportunistic irrelevance, domination, illegitimate use and application of knowledge.[31]

These charges have been based on the assumptions that the developing countries suffer from an "unfavorable balance of intellectual payments" since they import more knowledge-products from the industrialized countries. The Third World is therefore heavily dependent on the already developed countries in most scientific and technical fields.[32] Human capital economic theory for example is Northern-specific. It is so intimately bound up with the special conditions, problems, and preconceptions of the industrially advanced countries that large portions of it have to be abandoned before we can come to grips with the problems of the Third World.

Are these charges justified? Paul Streeten does not think so. For him, the search for knowledge, for scientific objectivity and truth must be the function of a serious scholar. For the

> *commitment to the search for knowledge...knows no national frontier. In addition to the intrinsic*

value of this commitment, loyalties to universal values that cut across frontiers that have their political value in an age when nationalism, a powerful Christian heresy, and ideologies have become dominant secular religions. In this sense, therefore, there cannot be African, Asian and Latin American criteria for truth or validity.[33]

What Streeten is saying is not new. It is only a restatement of the familiar doctrine that any theory (economic theory included) is "ethnically neutral" and can be made use of in the more efficient pursuit of objectives to be chosen by the "value judgements" of policy makers. Theory is relevant and effective insofar as it provides insights into fundamental processes, but the quest for such insights cannot be systematically bent to any external requirement without hampering its development and its consequent effectiveness.

Criticism of the Human Capital Theory

The human capital theory has been indicted for the deleterious and/or inappropriate consequences of its indiscriminate adoption in the Third World. This adoption was made possible by a direct diffusion or a conversion of a very substantial segment of the Third World leaders and intellectuals who accept the utility and validity of the theory. Sobel mentioned that he gave a series of summer seminars and courses to southern hemisphere leaders from developing countries,[34] who attempted to replicate the human capital doctrines which they have studied in their countries. But, it is clear that any deeper understanding about the role of education in society cannot be gained through referring to some diffuse "taste" on the part of the population.

One criticism of the economists of education or the human capitalists is that they have tended to lump together countries with varying historical background, culture and economy, and treat educational data and changes without regard to these differences. Their research and statistical bases were derived from mostly American data. These methods have spread all over the world but are still based on American or Western experience. Here too, the general human capital theory which was oversold by the interpreters, intermediaries, and propagandists was not discriminating enough to take into account the level of education. It didn't specify the level of educational expenditures that was most profitable in the initial phases of the human capital movement. Later in the 1970s this became possible and has led to much of the internal criticisms and revisions made.

Another criticism questions the methodological approaches that have been employed to assess the economic value of education.

The four approaches reviewed earlier have never been brought together to form a unitary theory. The point here is not that the human capital theory was a bad theory, but rather that its development was an amalgamation of different aspects of the theory. All of these aspects are not necessarily congruent with each other, nevertheless the tendency has been to categorize the human capital theory as a single theory. Blaug (1976) points out that the theory of human capital cannot be reduced to a single theory but must be seen as a perfect example of a research program. Accordingly, the "hard core" of the research program illuminates the concept of human capital by certain behavioral phenomena exhibited by individuals acting for themselves or on behalf of society. Blaug's attempt to define it is irresistible here:

> *[It] is the idea that people spend on themselves in diverse ways, not for present enjoyment, but for the sake of future pecuniary and non pecuniary returns. They may purchase health care; they may voluntarily acquire additional education; they may spend time searching for a job with the highest possible pay, instead of accepting the first offer that comes along; they may purchase information about job opportunities; they may migrate to take advantages of better employment opportunities; they may choose jobs with low pay but high paying potential in preference of dead-end jobs with high pay. All these phenomena...may be viewed as investment rather than consumption, whether undertaken by individuals on their behalf or undertaken by society on behalf of its members.*[35]

The point here is that investment in people is analogous to investment in physical capital. If this is the pillar that holds the theory together, then we must apply the same criterion in the decisions that affect investment in human beings. One would suppose that policy makers are rational in the decisions that affect their policy. Thus, if we decide to build a road rather than, say, a school, it must be because the returns on the road are greater than those of the school. In the context of education in the Third World the contention has been that it must receive top priority. But we cannot use the argument of education as investment merely to increase its expenditure or to give it a high priority in terms of development expenditure without recognizing and accepting the implications of doing so. Therefore, the criterion that is applicable to investment in general also becomes relevant in the case of education taking into consideration the specific context of each country.

There are also some reservations about the most popular approach preferred by most writers, the rate of return approach.[36]

Rate-of-return calculations are based on past income data. Consequently, utilization of this model for predictive purposes will be valid only to the extent that past rates of return reflect future rates of return. This may well not be the case, especially so in developing countries experiencing increased socio-political pressures for expanding their educational systems.

An important point is to ask whether these rates of return actually reflect or measure human capital investments. It can be argued that the role of education in capitalist countries is the reproduction of the capitalist order. That is, the purpose of education is to serve essentially conservative functions and to reinforce the status-quo. The result then is that the rewards derived from the same amount of formal education will not be the same for all social groups. Bowles and Gintis, writing about the U.S. say,

> *Because the capitalist class pursues its long-run interests through the state, and in important measure through its influence on educational policy, the structures of rate of return will reflect the often contradictory requirements of capitalistic reproduction and the reproduction of the class structure.*[37]

Therefore, it is likely that rates of return will be unequal among different types of schooling and between schooling and other types of human capital investment. Thus, the defect of the model stems from the exclusion of intervening variables that affect the decisions to invest in human capital. For example, in the case of education, the model fails to consider several factors that may affect the level of education and/or income such as parental income and education ability and intelligence, motivation and various other education factors.[38] In the developing countries, especially the pluralistic countries of Africa, other factors such as ethnicity, multi-lingualism, etc., decreases the effectiveness of the model.

Conclusion

Within the past two decades many observers have noted that the continued expansion of educational institutions in the Third World has failed to meet the needs of the poor majority in these countries. Some of the central issues facing these countries concern the inefficiency of the present schools and educational systems, a mismatch between educational institutions and the labor market and inequities in the distribution of educational opportunities which result to the rural and urban poor.

These issues question the ability and functions of schools in the formation of human capital. The theory attacks the view

that formal educational systems in the Third World, as they now operate, are not the best alternative for modernizing the society and that they are inefficient. However, this is not to imply that schools are irrelevant either to skill formation or to personal development.

The task at hand is twofold and may be very difficult, if not impossible to accomplish. Firstly, the leaders of developing countries must be willing to make adjustments in their societies within which the human capital theory can be applied within a safe margin of validity and reliability. Secondly, the "hard core" of the theory must be maintained but auxiliary assumptions must be introduced which take into consideration the special needs of each developing country. For example, "methodological individualism" as Blaug contends, "characterized the human capital research program," that is, the view that all social phenomena should be traced back to their foundation in individual behavior.[39] In the developing world, the relative lack of a competitive market will render the theory impotent since the decisions of these governments could hardly be said to be representative of its members.

In Africa there exists an enormous perceptual gap between the rhetorical ideological leanings of her leaders and the concrete implementation of her suggested policies. The building of schools, the provision of health care facilities, food aid, farm to market roads, agriculture extension agents, technical advisers, and even national security arrangements, etcetera, of many of these countries are funded by foreign governments (in most cases former colonial governments) and from international organizations. These "tied aids" bind these countries to aims sometimes detrimental and contrary to their national objectives. These countries should embark on a process of decolonisation. This can be done simultaneously as follows:

a) decolonisation of the sources of finance as a tactical measure towards self-reliance, and

b) decolonisation of the political structure as a strategic necessity for the reconstruction and setting of priorities to meet social needs of the Third World. This would mean the severance of political control of the South by the North.

Research in the Third World is still in the embryonic stages. Most work is done through "hunches," guesswork and plain misinformation. In combination with the above recommendations, the seriousness of the leadership in confronting the forces of the status quo must be tackled. The first priority is the need for research to be supported and carried out in the Third World settings. One case one can make for social science research in developing countries is the need for gathering local data. In-

stead of seeking to emulate and extrapolate from Northern-bound research, efforts should be increasingly directed towards identifying and developing new and better alternatives for testing and carrying out research projects that take into account the very special economic, social and cultural environments of the developing countries. This means that the leadership must initiate, and be willing to change by relying more on projects for self-reliance, involving local initiative, emphasizing rural rather than urban development and mass rather than elite education. In other words, the leadership must be close to the people so that it may be able to learn from, as well as teach the people.

Unfortunately, the ability of the Third World nations to develop local capacities and resources to sustain basic research is predicated on the continued external funding and support from the industrialized countries. Streeten has argued that one way to establish effective relations between Northern and Southern research is for Third World researchers to have a sense of equality.[40] Possible areas of research where data is lacking include 1) utilizing traditional systems for transmitting knowledge, 2) testing for the optimal age for literacy training, 3) testing the effectiveness of different curricula in achieving specific objectives, 4) utilizing examinations as a motivating educational force, 5)training teachers and 6) relating universities to practical development affairs.[41] The need for developing rational decision-making process based on local evidence, research and data is a high priority area that no country in the Third World should take lightly.

Our thesis is this: the continued importation of a theory which is used for policy decisions derived from Northern experience and data is inappropriate for the South. The question of relevance becoming very important since rational policy decisions are supposed to be based on valid theory. The case of the human capital theory illustrates this point. On examining the literature on the subject, we have pointed out that while the general theory was largely accepted, some aspects of the theory were wrongly applied in the Third World. We also argued that there were four main approaches used in assessing the contribution of education to economic growth and that no attempts have been made to develop a unitary theory of human capital, Blaug's apologetic remarks notwithstanding.

In the 1960s there was a predisposition on the part of decision makers in many Third World settings to make heavy investments in education. This coincided with the human capital revolution in economic thought. We cautioned that to blame the human capital theory entirely, or mainly for the educational problems engulfing the developing countries is a misreading of the theory as originally formulated by Schultz. Rather, the human capital theory was brought in to reinforce, rationalize,

legitimize and even subject an ongoing empirical reality -- to scientific investigation, viz., the educational explosion -- that was being produced by a combination of some other factors. We showed that certain adjustments and conditions must be created before investment in human capital can have any positive payoff for the societies of the Third World.

We do not pretend ours to be the final word on the matter, but since investments in human capital, especially those in education require long periods before they begin to bear fruit, policies in respect to human capital formation in the Third World countries must be planned carefully with relevant criteria.

NOTES

[1] Irving Sobel has given a comprehensive historical account in his article "The Human Capital Revolution in Economic Development: Its Current History and Status," *Comparative Education Review*, Vol. 22, No. 2, June 1978. For an earlier view, see M. J. Bowman's "The Human Investment Revolution in Economic Thought," in Blaug (ed.), *Economics of Education I*, Baltimore: Penguin Books Inc., 1968.

[2] Those who have accepted this theory in its general framework are represented by Denison and the purveyors of the "Chicago School" with Schultz, Becker and Bowman being perhaps the most prominent supporters.

[3] See for example, Blaug, Mark, *The Economics of Education: An Annotated Bibliography*, Third Edition, Oxford: Pergamon Press, 1976.

[4] Altbach, P.G. "The Distribution of Knowledge in the Third World: A Case Study in Neocolonialism," in Altbach, P.G. and Gail P. Kelly (eds.), *Education and Colonialism*, New York: Longman Inc., 1978, pp. 301-332.

[5] Mazrui, Ali A. "The African University as a Multinational Corporation: Problems of Penetration and Dependence," in Altbach and Kelly (eds.), *Education and Colonialism*, pp. 351-354.

[6] Norman, V.D. *Education, Learning and Productivity*. Bergen-Oslo: Univeritetsforlaget, 1976.

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[10] Schultz, Theodore W. "Capital Formation by Education," *Journal of Political Economy*, (December, 1960), pp. 571-584.

[11] Schultz, T.W. *Investment in Human Capital*, New York: The Free Press, 1971, p. 272.

[12] See for example, Ambramovitz, Moses "Resources and Output Trends in the U.S. Since 1870," *American Economic Review*, 1956, Vol. 46, pp. 5-23. See also footnote 7.

[13] Sobel, Irving, "The Human Capital Revolution in Economic Development:..." (See footnote 1).

[14] Bowen, W. G. "Assessing the Economic Contribution of Education," Higher Education Report to the Committee under the Chairmanship of Lord Robbins 1961-1963, London, H.M.S.O., reproduced in *Economics of Education I.* M. Blaug (ed.), Baltimore: Penguin Books, 1968, pp. 66-100.

[15] Bowen, pp. 67-73.

[16] Denison, Edward F. *Sources of Growth in the U.S. and the Alternatives Before Us.* New York: The Committee on Economic Development, 1962.

[17] Various criticisms have been made of Denison's methods: 1) He concentrated rather exclusively on the contribution of formal education to economic growth, while ignoring the possible and substantial contribution of informal schooling (especially on-the-job training). 2) His assumption that 60 percent of income differential is attributable to education has not been empirically verified. 3) The mix and shifts of horizontal (from liberal to technical) and vertical (elementary versus secondary) appears to affect the quantitative relation between education and growth.

[18] Bowen, p. 77.

[19] Miller, Herman. "Annual and Life-time Income in Relation to Education: 1929-1959," *American Economic Review*, Vol. 50 (Dec. 1980), pp. 962-968.

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[22] DePrano, M.E., and J. B. Nugent. "Individual Educational Subsidies as a Remedy for the School Dropout Problem: A Procedure for Estimating Costs" quoted in Yotopoulos, P. A.,and J. B. Nugent. *Economics of Development" Empirical Investigations*, New York_ Harper and Row Publishers, 1976, pp. 184-197. Also see Psacharopoulos, G. "On Some Positive Aspects of the Economics of the Brain Drain," *Minerva*, Vol. 9, (April 1977), pp. 231-242.

[23] Harbison, F. and Ch. A. Meyers. *Education, Manpower and Economic Growth" Strategies of Human Resource Development*. New York: McGraw-Hill Book Co., 1964.

[24] The Conference of African States on the Development of Education in Africa was held in Addis Ababa in May 1961 with the objective of providing African nations a forum to discuss and decide their educational priorities. For the Asian and Latin American continents similar conferences were organized by UNESCO in Karachi and Bogota respectively to decide the educational future of these countries.

[25] UNESCO-ECA (UN), Conference on African States on the Development of Education in Africa. Addis Ababa, May 1961 Final report (Paris, 1961) (UNESCO/ED/181).

[26] Ibid.

[27] See for example Balogh, T. and P. Streeten, "The Planning of Education in Poor Countries," in Blaug (ed.), *Economics of Education I*, pp. 66-100. See also Bowen and Sobel.

[28] Dore, Ronald. *The Diploma Disease" Education, Quantification and Development*. London: Unwin, 1977.

[29] See Ashby, E. review of Ronald Dore's *Diploma Disease* in the *Journal of Higher Education*, Vol. 49, No. 1, 1978, pp. 93-96.

[30] Collins, Randall. *The Credential Society*. New York: Academic Press, Inc., 1979.

31 Streeten, Paul. "Some Problems in the Use and Transfer

of an Intellectual Technology," in *The Social Sciences and Development*, Papers presented at a conference in Bellagio, Italy on the Future of Social Science Research for Development, Feb. 1974, pp. 12-14.

[32] Altbach, "The Distribution of Knowledge in the Third World:...", see footnote 4.

[33] Streeten, "Some Problems in the Use and Transfer of an Intellectual Technology," p. 12.

[34] Sobel, "The Human Capital Revolution in Economic Development:...", see his footnote No. 19.

[35] Blaug, Mark, "The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey," *Journal of Economic Literature*, Vol. 14, No. 4 (1976), p. 829.

[36] See for example Berg, I. *Education and Jobs: The Great Training Robbery*, New York: Basic Books, 1972. Bird, C. *The Case Against College*, McKay, 1975. Freeman, R.F., *The Overeducated American*, New York: Academic Press, 1976. M. Blaug, "The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey," *Journal of Economic Literature*, Vol. 14, No. 3 (Sept. 1976), pp. 827-855.

[37] Bowles, Samuel and Herbert Gintis. "The Problem with Human Capital Theory -- A Marxian Critique," *American Economic Review*, Vol. 65, No. 2 (May 1975), pp. 74-82.

[38] See for example Becker, G. *Human Capital*, New York: N.B.E.R., 1964. Bowles, S. "Schooling and Inequality from Generation to Generation," *Journal of Political Economy*, Vol. 80 (May Supplement), 1972.

[39] Blaug, "The Empirical Status of Human Capital Theory:...", p. 830.

[40] Streeten, "Some Problems in the Use and Transfer of an Intellectual Technology," pp. 40-45.

[41] Edwards, E.O. and Todaro, M.P. "Education and Employment in Developing Nations," in E. O. Edwards (ed.), *Employment in Developing Nations*, Report on a Ford Foundation Study, New York, 1975, pp. 313-329.