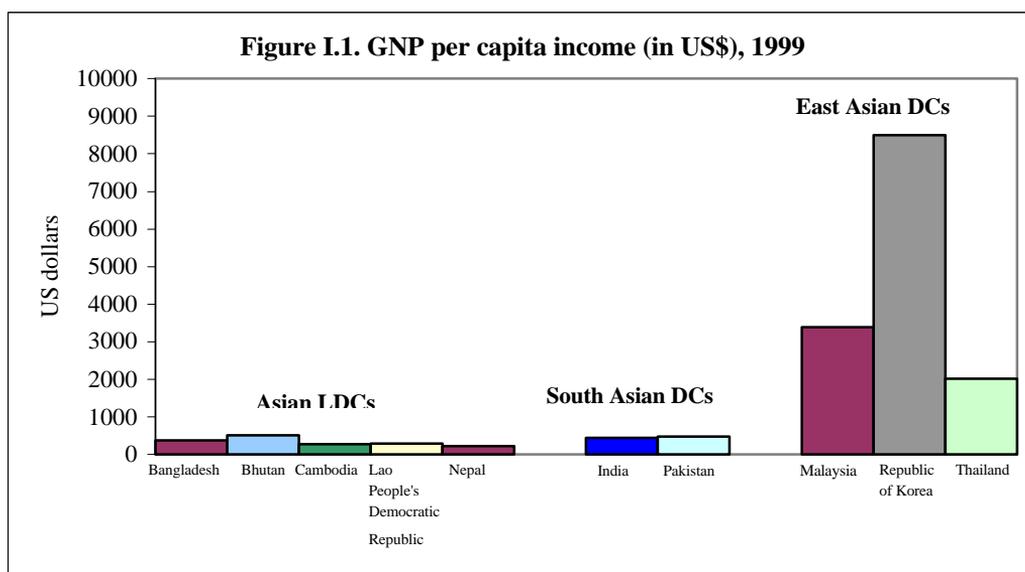


I. ROLE OF HUMAN CAPITAL IN ECONOMIC DEVELOPMENT: SOME MYTHS AND REALITIES*

A. Background

The world today is very different from the one which experienced the two world wars. During the second half of the twentieth century, considerable advancements in science and technology, along with the establishment of broadly-based governments and strengthening of institutions, have led to significant socio-economic progress and improvement in the lives of a large number of people in many countries. However, there are still many others among us who are lagging behind. The current **reality** in the Asian region is the existence of significant differences in the state of economic development among countries. For instance, when GNP per capita income is taken as an indicator of economic development (see figure I.1), the figures for both Asian least developed countries and South Asian developing countries such

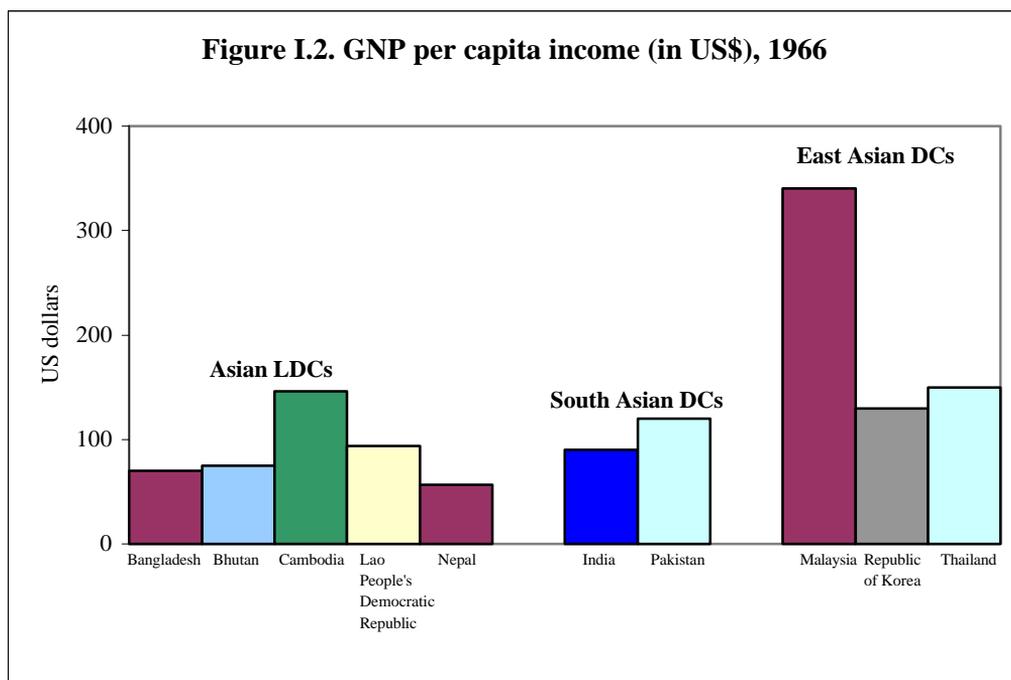


This paper was prepared by Mr. Parvaz Habib, Chief, Least Developed Countries Section, Development Research and Policy Analysis Division, ESCAP.

Source: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries* (Oxford University Press) various issues.

as India and Pakistan are still below \$ 500 whereas those for East Asian developing countries range from over \$ 2,000 for Thailand to as high as about \$ 8,500 in the Republic of Korea.

Given the vastly divergent economic development among the groups of countries, it would be a common **myth** to presume that the discrepancy in development is somehow inherited by the respective groups of countries. Contrary to this general perception, it is quite an enigma to note that, this had not been the case in the past. In fact, figure I.2 distinctly shows that economic development measured in terms of GNP per capita in the 1960s for all these countries was quite similar and comparable to the extent that all the countries, with the exception of Malaysia, were below the \$ 200 mark. Not only that, the Republic of Korea had a per capita income of only \$ 130 in 1966, which is even lower than that of Cambodia at that time as shown in figure I.2.



Source: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries* (Oxford University Press) various issues.

In light of the above, the pertinent question is: what factors led to this exceptional economic development for some countries (i.e., East Asian developing countries) in the last three decades in terms of increasing their GNP per capita income by as much as over 65 times for the Republic of Korea, 13 times for Thailand and about 10 times for Malaysia while, during the same period for Asian least developed countries and South Asian developing countries, only a meagre increase of 2 to a little over 5 times took place? Obviously, the factors could be numerous, ranging from social to cultural, from economic policies to institution development, geographic location to opportune time. In this paper, however, rather than focussing on all these factors together, which of course is beyond the scope of this study, only the socio-economic factors, particularly the human capital dimensions, are briefly investigated across the group of countries to establish the possible role and linkage of human capital with economic development.

B. Human capital and economic development

Theoretical perspective: What exactly is the role of human capital and other social variables in economic growth and development of an economy? In the traditional neoclassical growth models developed by Robert Solow and Trevor Swan in the 1950s, the output of an economy grows in response to larger inputs of capital and labour (all physical inputs). Non-economic variables such as human capital or human health variables have no function in these models. Furthermore, the economy under such a model conforms to the *law of diminishing returns to scale*. With these assumptions, the neoclassical growth models afford some implications to the economy; particularly that as the capital stock increases, growth of the economy slows down, and in order to keep the economy growing it must capitalize from incessant infusions of technological progress. It is well known that this type of mechanism in the neoclassical growth model is neither inherent nor does it strive to explain much; in economic lexicon, this simply means that the technological progress is “*exogenous*” to the system. Yet the reality is quite contrary to that, particularly for the East Asian developing economies mentioned

earlier, where the economies kept growing for well over three decades. This implies that it is not only technology which is the main driving force accountable for maintaining such high growth performance in these economies, but that there are other factors which are outside the realm of neoclassical growth model.

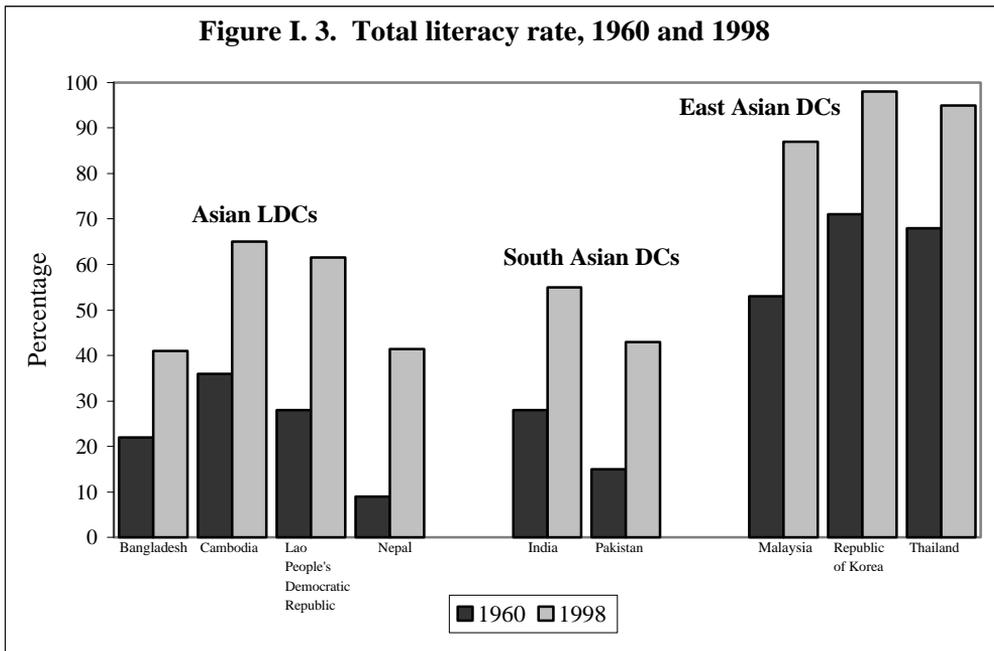
Addressing the above issues, in the mid 1980s, a new paradigm was developed in the literature, mostly due to the Paul Romer (1986), which is now commonly known as “*endogenous growth models*”. By broadening the concept of capital to include *human capital*, the new endogenous growth model argues that the law of diminishing-returns-to-scale phenomenon may not be true as is the case for East Asian economies. In simple terms, what this means is that if the firm which invests in capital also employs educated and skilled workers who are also healthy, then not only will the labour be productive but it will also be able to use the capital and technology more efficiently. This will lead to a so called “Hicks neutral” shift in the production function and thus there can be *increasing* rather than *decreasing* returns to investments. In other words, technology and human capital are both “*endogenous*” to the system.

Indeed, the advent of “endogenous growth models” with human capital (providing externalities) have certainly enhanced the understanding of the mysteries of rapid and long sustainable high growth performances of East Asian economies. However, in order to establish the point whether healthy human capital was one of the important factors in explaining the economic development for the Asian countries in the region, it will be useful to analyze the actual data on these variables across the countries considered earlier. Although there are many variables that can represent human capital and health conditions of the people of a nation, to keep the analysis simple while, at the same time, capturing the basic broad thrust of these two variables, this paper will focus on total literacy rate and life expectancy at birth.

Empirical evidence: In inspecting the total literacy rate data for various groups of Asian countries in figure I.3, it is intriguing to note that even in the 1960s when most of these countries were at similar stages of economic development, East Asian developing countries were far ahead of both Asian least developed countries and South

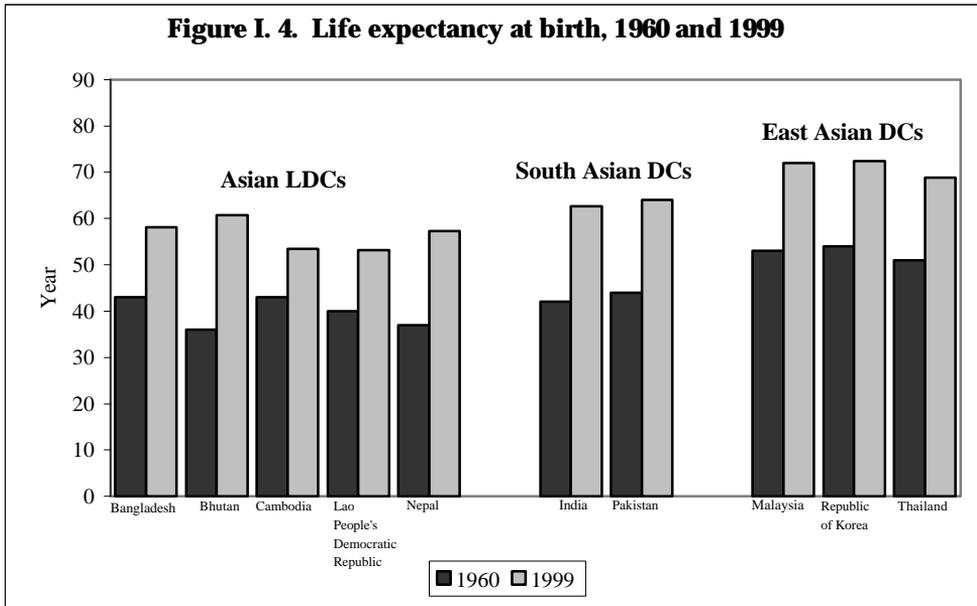
Asian developing countries. In fact, the total literacy rates for East Asian developing countries in the 1960s were as high as 71 per cent for the Republic of Korea, 68 per cent for Thailand and even Malaysia had a rate of over 50 per cent. On the other hand, in case of all Asian least developed countries and South Asian developing countries, the total literacy rates were as low as only 9 per cent for Nepal and 15 per cent for Pakistan with Cambodia having a rate of 38 per cent. After three decades, while Asian least developed countries and South Asian developing countries have somewhat ameliorated their human capital, the total literacy rates are still far below 50 per cent particularly, in case of Bangladesh, Nepal and Pakistan as shown in figure I.3. During the same period, however, the East Asian developing countries have more or less achieved the formidable task of educating most of their people. As a result, in the late 1990s, the total literacy rate of the Republic of Korea has reached 98 per cent and Malaysia managed to achieve a rate of about 90 per cent.

Analyzing the health variable measured in terms of life expectancy at birth across the three groups of countries in the Asian region, like the literacy rate, again a similar sort of pattern is evident among these countries. For instance, in the 1960s, all Asian least developed countries and South Asian developing countries had a life



Sources: World Bank, *World Development Report 1982* (Oxford University Press, 1982); UNESCO, *Statistical Yearbook 1999* (UNESCO Publishing & Bernan Press, 1999).

expectancy at birth below 45 years with Bhutan and Nepal having a figure of even much less than 40 years as shown in figure I.4. On the other hand, during the same period, the East Asian developing countries had a life expectancy at birth well over 50 years with the Republic of Korea having a figure over 54 years followed by 53 years for Malaysia and 51 years for Thailand. In the late 1990s, although the Asian least developed countries and South Asian developing countries enhanced their life expectancy to a level of over 60 years at least in the case of Bangladesh, Bhutan, India and Pakistan, nevertheless, East Asian developing countries' record, in this context, is far more poignant as shown in figure I.4. In the case of both Malaysia and the Republic of Korea, the life expectancy rate is now in the order of over 72 years with Thailand reaching a figure of 69 years.



Sources: World Bank, *World Development Report 1984* (Oxford University Press, 1984); and *World Development Indicators 2001* (Washington DC, 2001).

What can one infer from the discussions so far? First of all, the empirical data overwhelmingly incarnate that, in the past three decades, the three groups of Asian countries considered in this paper started with a similar state of economic development but now, in the late 1990s, there is a marked difference among them on account of their per capita incomes. The East Asian developing countries are now well beyond the reach of Asian least developed countries as well as South Asian developing countries in terms of economic development. Secondly, although in terms of per capita income all these groups of countries were quite comparable in the 1960s, nevertheless, in the context of human capital and health sector development, there were huge differences among them; East Asian developing countries were, by far, ahead of both Asian least developed countries as well as South Asian developing countries even in the 1960s. In the 1990s, most East Asian developing countries' population were literate while Asian least developed countries and South Asian developing countries still have a long way to go. Thirdly, based on the facts presented earlier, it is evident that the onslaught of East Asian developing countries' rapid economic progress in the 1980s occurred along with their reasonably

well developed and healthy human capital endowment which started to take momentum in the 1960s or even earlier.

It is the view of the author that, for human capital to spawn a perceptible impact on economic development, a nation needs to have a minimum captious mass of at least 70 per cent or more literate population. What this means is that if an overwhelmingly large number of people in a country are literate, even with simple basic education as being able to read newspapers, this may open up the minds of the masses, possibly make them more enlightened workers and perhaps institute some element of discipline in them. These are, of course, some of the essential prerequisites for a large organized production to run efficiently and for leading to rapid growth. Through mass literacy, better prepared healthy workers and conducive investment friendly government policies, East Asian developing countries seem to have been able to furnish those essential elements of rapid growth at the very early stages of their development. And, therefore, at the dawn of globalization in the early 1980s, East Asian developing countries were befittingly prepared to attract large sums of foreign investments thus accomplishing rapid economic progress. On the other hand, during the same period, unfortunately both Asian least developed countries and South Asian developing countries were neither primed in terms of human capital endowments at large nor were their government investment policies responsive enough to allure foreign investors in sizeable quantities to trigger rapid economic growth. Thus, in a mere two decades, both Asian least developed countries and South Asian developing countries lagged far behind the East Asian developing countries to the extent that any catching up in the near future by the former groups of countries to the level of the latter countries would be a very challenging onus.

What led to the divergence in human capital among nations?

As demonstrated above, a well developed human capital base of a nation played an important role in economic development and, on this count, East Asian developing countries' were far ahead of Asian least developed countries as well as South Asian developing countries even at the early stages of economic development. A germane public policy question, in this context, is how the East Asian developing countries managed to delude such a well developed human capital base as

compared to Asian least developed countries and South Asian developing countries even when the per capita incomes for all these countries were rather similar as shown earlier. In other words, for all practical purposes, in the 1960s, all these groups of nations could be contemplated as equally rich or equally poor, yet in terms of human capital development they were distant apart from each other. What led to this significant divergence in the human capital development among these groups of countries? This study argues that it is the direction of a nation's **priorities** and **commitments** measured in terms of actual resources devoted towards the education sector that led to such differences in human capital among the groups of countries. This view is perspicuously supported by the data on per capita government investments in education as well as in health for various groups of countries in the region as shown in table I.1.

Inspection of table I.1 clearly reveals that in the 1970s (or earlier), governments in Asian least developed countries and South Asian developing countries were spending only a scanty amount of 40 cents to \$ 1.60 on a per capita basis on education. At the same time, however, under comparable economic conditions, East Asian developing countries' governments were investing much larger sums of money on education on a per capita basis; anywhere between \$ 9.10 by the Republic of Korea to as high as \$ 16.40 in case of Malaysia. As for the health sector, although the per capita public investments gaps in the 1970s (or earlier) were somewhat narrower, an East Asian developing country like Malaysia was still spending over \$ 5.5 per person as opposed to only 12 cents by Pakistan as shown in table I.1. Now in the new millennium, however, the disparities in per capita expenditure on both education and health between Asian least developed countries and South Asian developing countries and East Asian developing countries are staggering to the extent that for education on a per capita basis, the Republic of Korea is spending over 26 times that of India and Pakistan and as high as 95 times of Cambodia.

The preceding discussions based on empirical data presented in table I.1, unequivocally support the view that East Asian developing countries were far more committed and gave high priorities to education and health sectors as compared to Asian least developed countries and South Asian developing countries by way of incessantly investing large sums money in these sectors on a per capita basis even

in the early stages of economic development. The impact of those investments were directly ruminated in terms of high literacy rates and markedly improved years of life expectancy at birth thus leading to higher per capita incomes and economic development.

C. Gestation period for human capital investments

Given the acceptance of human capital investments towards economic development, a pertinent question is whether the time taken or the gestation period of such investments to proliferate intended impact in terms of literate skilled workers is comparable to that of physical infrastructure investments such as roads, highways and hydroelectric dams. It needs to be underscored that, while the physical infrastructure investments may ordinarily take a long time to be completed, however, the impact period for human capital investments could be even longer if it is to forge results. Not only that, while it may even be possible to abbreviate the gestation period of physical infrastructure investment by apportioning more resources through

Table I.1. Per capita expenditures on education and health sectors (in US\$), 1970 and 2000

Countries	Education		Health	
	1970 (or earlier)	2000 (or latest year)	1970 (or earlier)	2000 (or latest year)
Asian least developed countries				
Bangladesh	1.2	6.8	0.5	3.2
Cambodia	1.4	3.9	2.3	2.6
Nepal	0.4	5.8	0.3	2.0
South Asian developing countries				
India	1.58	13.77	0.35	2.43
Pakistan	0.42	14.24	0.12	4.27
East Asian developing countries				
Malaysia	16.4	226.4	5.5	61.2
Republic of Korea	9.1	371.4	0.7	17.8
Thailand	11.0	88.1	2.0	25.8

Source: Calculations based on World Bank, *World Development Report 1982* (Oxford University Press, 1982) and *World Development Indicators 2001* (Washington DC, 2001). Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries* (Oxford University Press) various issues.

borrowing or foreign aid, the same cannot be said for human capital. Notwithstanding of the size and pace of human capital investments, it will necessitate a fixed number of years (say five years for a primary high school or eight years for secondary education) to shape a generation of educated and skilled labour force.

Another important distinction between physical infrastructure and human capital investments is that the former type of investment customarily requires a one-time capital expenditures while the latter category enjoins investments on an interminable basis. For instance, once a hydroelectric dam project is completed, it is expected to generate electricity for a long time without entailing future heavy capital expenses. On the other hand, to mould a generation of educated workers will entail investments in human capital on an incessant basis. Thus, the return of the social sector investment is a **long term continuous proposition** and, therefore, its affiliation with economic growth and development should be delved and analyzed within a framework which has a longer perspective. This proposition is also empirically substantiated by the author for Pakistan in two other earlier studies (Pasha, Hasan et al, 1996a, 1996b). Based on a large, over 200 equations dynamic econometric model of Pakistan, the findings of these studies insinuated that a shift in the investment priority to social development (i.e., education sector) would entail enduring positive impact on economic growth but with long lags of about eight years. The results of the studies further suggested that, in the short to medium term, the impact of human capital investment on economic growth for the country may not be noticeable; however, after the critical time period of eight years the economic growth for the country will be substantial and long-lasting.

D. Concluding remarks

towards public policy? First of all, the study empirically found out that in the past three decades, among other things, the nations Asian region with broad based healthy human capital (such as East Asian developing countries) grew faster than the ones (such as Asian where these elements were missing. Thus, the empirical results in this **corroborated the premise that there is an important link between healthy human capital and rapid economic development of**

Secondly, the study also found that, under similar economic predicaments with comparable per c countries (such as East Asian developing countries) were investing far more in human capital and health sectors on a per capita basis than the Asian developing countries). This result substantiated the point that **is the commitment and priority of a nation rather than other economic factors alone** as compared to Asian least developed countries and South Asian develo even when they were all equally opulent or equally penurious.

Thirdly, it is important to acknowledge the fact that there is a distinction between investments in human capital versus physical finding of the study, in this context, upholds the view that, while it is possible to cut down the gestation period of physical infrastructure e same outcome, however, may not be possible for human capital investment. **physical infrastructure investment, human capital development investment is a long term as well as continuous proposition**

ic policy are very simple and unpretentious. In the 1960s, most countries in the Asian were remarkably analogous in terms of their economic development. However, at the dawn of the new millennium, although uth Asian developing countries have made some economic progress, these countries are still

attributed to their earlier copious investments made in human capital. What policy options and choices are available to the Asian least developed countries and South Asian developing countries under the prevailing circumstances to improve economic development and to catch up with the East Asian developing countries? It is the view of the author that they will have to adopt similar policy options as the East Asian developing countries did in the 1960s - that is to deeply commit and heavily invest in human capital development. This study has shown that there is no shortcut procurable in terms of educating the masses of a nation and in the event these countries demonstrate any laxity in building up a broad human capital base sooner than later this is likely to be a recipe of postponing the impending quagmire to a future date.

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