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*Distinguished Lecture*

## Human Capital and Economic Growth in Pakistan

MOHSIN S. KHAN

Pakistan's economy has grown faster on average than many other low- and middle-income countries over the past two decades. But several countries in Southeast Asia have fared even better. This paper focuses on factors that explain Pakistan's relative growth performance. In addition to more traditional factors believed to determine growth, this paper looks particularly at the role of differences in the quality of human capital. The cross-country empirical results suggest that accumulation of physical capital and improvements in the quality of institutions have the largest pay-offs in terms of achieving higher growth, but that better education and health care also have a significant impact. Investment in these areas will increase the possibility of Pakistan entering a virtuous cycle of high growth and improved living conditions for the population.

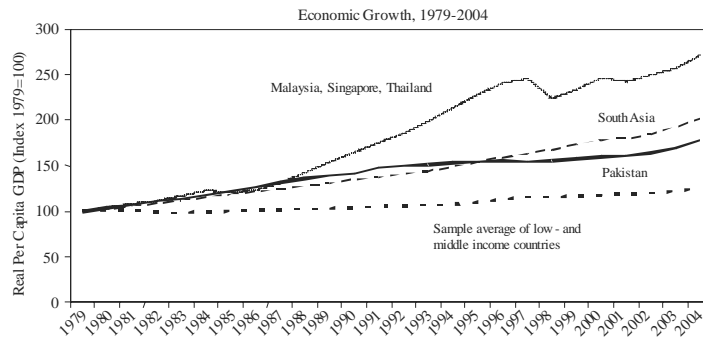
### I. INTRODUCTION

For over two decades, the Pakistani economy has been growing on average at the very respectable rate of about 5 percent per year, although with considerable fluctuations around the mean. This rate of growth has been higher than in many other low- and middle-income countries and has been comparable to that of other South Asian countries. But it has been significantly below the growth rates experienced by countries in Southeast Asia, such as Malaysia, Singapore, and Thailand. Figure 1 shows the development of per capita GDP over the period 1979–2004 in a sample of 72 low- and middle-income countries, as well as in two sub-groups of South Asian and Southeast Asian countries and in Pakistan. It shows that Pakistan has done fairly well compared to the developing countries group, but that real per capita GDP in Southeast Asia expanded by more than twice as much during this period.

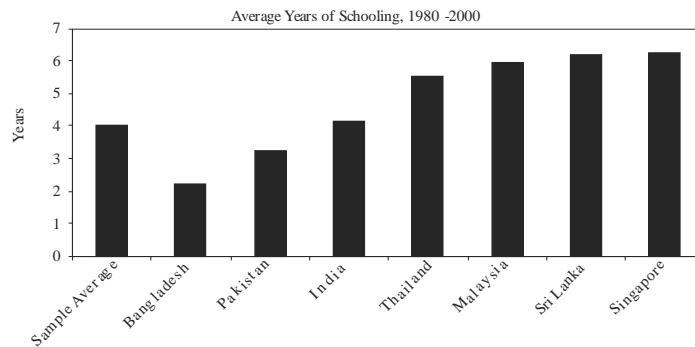
In the past few years, as the pace of growth accelerated, Pakistan has started to catch up with the countries in Southeast Asia. In the second half of the 1990s, growth

Mohsin S. Khan works for International Monetary Fund, Washington, D. C.

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**Fig. 1. Economic Growth and Education**

Note: Group Growth rates are simple unweighted averages.



Sources: IMF World Economic Outlook; and Barro and Lee (2000).

rates in Pakistan had fallen to an average of 3 percent per year, barely exceeding population growth.<sup>1</sup> The government of General Parvez Musharraf that came to power in 1999 put macroeconomic stabilisation and broad-based structural reforms at the top of its agenda, and the economy witnessed a dramatic turnaround. Growth increased to over 8 percent in 2004-05, one of the highest levels in the world. The question is what can be done to repeat the performance of 2004-05 and sustain growth rates at a high level in the future so as to make a significant dent in the prevailing poverty levels.

Pakistan's growth performance in recent years is a puzzle. Compared to other high-growth developing countries, Pakistan's investment rate, educational levels, and quality of institutions are all low. Yet the economy has grown relatively fast. This paper focuses on the factors that may help explain the

<sup>1</sup>See, for example, the recent study of growth in Pakistan by Kemal, Musleh-ud Din, and Qadir (2002).

growth performance of Pakistan. In addition to the more traditional determinants of growth, such as investment levels, it will look particularly at whether the quality of human capital may have been a defining factor. School enrollment ratios are quite low in Pakistan and so is health care spending. Figure 1 also shows the average years of schooling, obtained from a data set assembled by Barro and Lee (2000). It shows that the average educational attainment in Pakistan has been low compared to other South Asian and Southeast Asian countries. And while these numbers are a little dated, the overall picture is unlikely to have changed much in recent years. Since there is evidence in the literature of a link between human capital and economic growth,<sup>2</sup> this would imply that investing more in human capital could help Pakistan maintain the high rates of economic growth that it has recently been experiencing. Indeed, with growth accelerating, businessmen increasingly list a shortage of skilled labour as a constraint to further expansion. Policy-makers in Pakistan recognise this constraint and accordingly have attached great importance to strengthening education.

The link between investing in human capital and economic growth matters for an additional reason. A large part of the world's population continues to live in poverty, and the focus of economic researchers and policy-makers has increasingly shifted toward designing policies that benefit the poor. There is widespread agreement that economic growth is necessary to help reduce poverty, but that growth by itself is not sufficient. Pakistan is a good example of this, as despite the relatively high growth rates, its social development is weak and poverty remains widespread, with about an estimated 30 percent of the population living in poverty. Investing in human capital, by creating a more productive work force, will lead to higher future growth and incomes. And higher social spending on education and health care can also benefit the poor directly by improving their current living conditions, as well as their future prospects.

The paper is structured as follows. Section II will review selectively the recent literature on economic growth, including findings regarding the importance of the quality of human capital. Following this, Section III presents the results of an econometric analysis of growth in a large group of low- and middle-income countries during 1980–2002, adding a number of education and health indicators to more conventional factors explaining growth, such as macroeconomic policies, initial income levels, and institutional quality. Section IV describes how Pakistan performed relative to the overall sample, and to countries in South Asia and Southeast Asia in particular. Based on these results, the concluding section will offer some suggestions as to how Pakistan could maintain higher rates of economic growth into the future.

<sup>2</sup>See, for example, Barro (2001), Benhabib and Spiegel (1994), Bils and Klenow (2000), and Temple (2001). For the specific case of Pakistan, see Abbas (2001).

## II. THE RECENT GROWTH LITERATURE

Raising the rate of growth in a sustained manner is one of the most important issues in economic theory and policy. There is a vast and growing body of literature that attempts to answer the question of how to promote growth.<sup>3</sup> But despite the voluminous literature, there seem to be no reliable and unambiguous answers to this question. For almost any study that finds a particular factor important for growth, there is a study that reaches a different, if not opposite, conclusion.

First let us start with some good news. According to the recent literature on “growth accelerations”, periods of sustained strong growth are a fairly frequent phenomenon. Hausmann, Pritchett, and Rodrik (2004) find that a country has a one-in-four chance to experience a growth acceleration sometime during a decade, with an acceleration defined as real per capita growth of 2 percent or more lasting for at least eight years. They also find that growth accelerations tend to be correlated with increases in investment and trade, with real exchange rate depreciations, and with political regime changes. Not all accelerations last equally long, however. External shocks, for example, tend to produce growth accelerations that eventually fizzle out, but economic reform is a significant predictor of accelerations that are sustained.

But there is also some bad news. The same study finds that growth accelerations tend to be highly unpredictable. While growth accelerations do tend to be correlated with such factors as an increase in investment or trade, the vast majority of growth takeoffs are unrelated to these standard determinants. Moreover, growth takeoffs typically fail to materialise when these standard conditions are indeed favourable. Similarly, Rodrik (2003) argues that igniting economic growth and sustaining it are two quite different things. Again some good news, as he finds that it often takes only small reform steps to jump-start the growth process. But sustaining growth requires continued institutional reforms that improve the resilience to shocks and maintain productive dynamism. Rodrik (2003) emphasises that there are a few first-order economic principles that need to be adhered to in order to maintain strong growth: protection of property rights; market-based competition; appropriate incentives; and low inflation (he calls it “sound money”). These principles can translate into very different policy packages, however, for individual countries. Reformers, therefore, appear to have substantial room for creatively packaging these principles into institutional designs that are sensitive to local opportunities and constraints.

There is now a broad consensus, however, regarding at least a number of “stylised facts” in the economic literature. Sala-i-Martin (2004) offers a broad summary of the literature on cross-country growth analysis. He notes that: (a) there is no simple determinant of growth, i.e., there is no “magic bullet”; (b) the initial

<sup>3</sup>See, for example, Barro and Sala-i-Martin (1995), Bosworth and Collins (2003), Mankiw, Romer, and Weil (1992), and Sala-i-Martin (2004).

level of income is the most important and robust variable, and thus conditional convergence is the most robust empirical fact; (c) the size of the government does not appear to matter much, but what is important is the quality of government and its policies; (d) the relationship between human capital and growth is weak, although some measures of health, such as life expectancy, are robustly correlated with growth; (e) more open economies tend to grow faster; and (f) institutions are important for growth.

Similarly, studies that use a growth accounting approach in analysing cross-country differences in economic growth, for example Bosworth and Collins (2003), Abed and Davoodi (2004), and Kemal, Musleh-ud Din, and Qadir (2002), find that the increase in production factors alone cannot explain economic growth. Or, as Easterly and Levine (2001) have put it, it is the “*A*” in the standard Cobb-Douglas production function  $Y_t = A_t f(K_t, L_t)$  that is key to growth, where *Y* is output, *K* the capital stock, *L* the quantity of labour, and “*A*” is generally taken to be total factor productivity. A substantial part of the differences in growth is accounted for by differences in total factor productivity.<sup>4</sup>

The question that follows is what drives changes in total factor productivity? Total factor productivity in effect provides a measure of the efficiency of the production process—the quantity of output that can be produced with a given quantity of inputs. Changes in total factor productivity reflect a myriad of determinants that influence growth, but which the measured increases in factor inputs do not account for. In other words, total factor productivity should not be taken as only an indicator of technical progress, as it can reflect the influence of other factors as well. Policies and institutions, for example, also affect the efficiency of an economy in much the same way as technology does. An economy with stable economic conditions or good institutions is more efficient in the sense that it takes less input to produce the same amount of output. Macroeconomic instability or weak institutions on the other hand lower incentives to invest—in physical and human capital, as well as in technology—to work, and to produce. Empirically, it is becoming increasingly clear that good policies and institutions are important determinants of growth, and human capital is also essential for putting such policies and institutions in place. Finally, total factor productivity also reflects the quality of labour. A better trained or skilled worker is capable of producing higher levels of output than an unskilled one.

There are now many empirical studies establishing the link between increases in the level of education—or more broadly, increases in the quality of human capital—and economic growth. Higher educational attainment is expected to have an impact on economic growth by improving the productivity of workers.

<sup>4</sup>This is true in Pakistan as well. If one takes the most recent high-growth period 2003-2005, then capital accumulation accounted for 25 percent, labour force growth for 31 percent, and total factor productivity increases for 44 percent of the average growth of real GDP over these 3 years.

An educated workforce is better able to implement new technologies and generate ideas for improving efficiency. But while at the microeconomic level studies have typically found a strong relationship between income and educational attainment, macroeconomic studies so far have found conflicting results. Early studies, including those of Mankiw, Romer, and Weil (1992) and Barro and Sala-i-Martin (1995) found a significant positive association between cross-country differences in the initial level of education and subsequent rates of growth. A 1993 World Bank study of the East Asian miracle listed the higher level of human capital as a major factor behind the rapid development of a number of East- and Southeast Asian countries.

At the time, however, other studies, including those by Bils and Klenow (2000), Pritchett (2001), Easterly and Levine (2001), and Temple (2001), that examined the relationship between years of schooling and changes in economic growth failed to find a significant association. Bosworth and Collins (2003) also fail to find a robust link between educational quality and growth, and particularly cannot distinguish educational quality from more general concepts of the quality of institutions. Some researchers suggest that the link between education and growth may be weak because the benefits of education are not fully realised due to a failure to integrate improvements in education with other important elements of the growth process. That is, the creation of skills offers no benefits if the infrastructure and institutions do not exist to make use of them. In other words, there is a complementarity between human capital development and other growth determinants such as infrastructure and institutions.<sup>5</sup>

### III. EMPIRICAL ANALYSIS

While growth regressions clearly have their limitations, most empirical analyses have utilised the regression approach to examine the characteristics and determinants of economic growth in large groups of countries over a long period.<sup>6</sup> Basically, from the studies that have regressed various indicators of output on a vast array of potential determinants, a core set of explanatory variables has emerged that has been shown to be consistently associated with economic growth. The importance of other variables has to be examined conditional on inclusion of this core set of variables in the specification.

<sup>5</sup>A simple explanation for the lack of association between human capital and growth may be that the former is not properly measured; see Cohen and Soto (2001). This is an important issue since most studies use primary and/or secondary school education as a proxy for human capital formation. It is not clear that such indicators capture skills-development of the work force.

<sup>6</sup>Using single-country time series makes it difficult to disentangle the cyclical and secular components of growth. Using filters to smooth the growth series throws out potentially meaningful information. Furthermore, most developing countries do not have long time series available on many of the relevant variables. As such, cross-country analysis, despite its well-known drawbacks, has become standard fare in empirical growth studies.

The empirical analysis in this paper is based on a standard Cobb-Douglas production function,  $Y = AK^\alpha(LH)^{1-\alpha}$ , augmented to account for the quality of labour, with the level of output ( $Y$ ) determined by capital inputs ( $K$ ), labour inputs ( $L$ ), and the level of educational attainment ( $H$ ) or, more generally, a measure of the quality of human capital, also covering health indicators, such as life expectancy. By assuming a steady-state constant value for the inverse of the capital-output ratio and a constant rate of depreciation, in the estimations the investment rate can be used instead of changes in the capital stock. This has the obvious advantage that it avoids measurement problems associated with constructing an artificial series for the capital stock. Using this approach, economic growth can be specified as a function of investment, human capital, and a set of determinants driving total factor productivity (as measured by  $H$ ).

A number of different measures are used here to represent the quality of human capital. These include literacy rates, average years of schooling, gross secondary school enrollment, and life expectancy. Variables that determine total factor productivity include the rate of inflation as a proxy for sound economic policies and the overall quality of institutions. In addition, given the importance of convergence—that is, whether incomes of developing countries are converging toward those of higher-income countries—the initial level of income has been included. Thus, the basic regression takes the following form:

$$\text{Growth} = \alpha_1 (\text{Investment}) + \alpha_2 (\text{Initial Income}) + \alpha_3 (\text{Macroeconomic Policy}) + \alpha_4 (\text{Institutional Quality}) + \alpha_5 (\text{Labour Quality}) + \varepsilon$$

This model was estimated for a group of 72 developing countries (including Pakistan). Data for real per capita GDP growth, gross fixed capital formation, CPI inflation, and per capita income in 1980 were obtained from the IMF's *World Economic Outlook* database. Data for gross secondary school enrollment, the adult literacy rate, and life expectancy were obtained from the World Bank's *World Development Indicators* database. Data for average years of schooling were taken from Barro and Lee (2000). For institutional quality, the average of four indicators compiled by the International Country Risk Guide was used. These indicators were rescaled to range from 1–12, and covered bureaucratic quality, corruption, rule of law, and government stability.

Table 1 presents the results of the estimation of a cross-section regression of the basic growth equation for the sample of 72 low- and middle-income developing countries.<sup>7</sup> The dependent variable is average real per capita GDP growth over the 1980–2002 period. The explanatory variables are also averages over the 1980–2002 period. The initial income variable is the per capita income in 1980 for each country.

<sup>7</sup>Due to limited data availability, the actual number of observations is generally slightly smaller than the total sample size.

It can be seen from Table 1 that the variables used to describe economic growth account for almost two-thirds of the cross-country variation in growth over the period 1980–2002. All of the conditioning variables—investment to GDP, initial income, the rate of inflation, and the quality of institutions—have the expected signs and are generally highly significant. The finding of a strong negative association between initial income and subsequent growth provides a robust support for a process of convergence. There is also a strong relation between growth and sound economic policies and between growth and the quality of institutions, such as law and order, protection of property rights, and the absence of corruption. The results in Table 1 basically replicate those obtained in other such studies, and largely confirm the stylised facts outlined by Sala-i-Martin (2004).

Table 1  
*Growth Regression Results*

	(1)	(2)	(3)	(4)	(5)
Dependent Variable: Average Growth of Real Per Capita GDP, 1980-2002					
Investment ratio (Percent of GDP)	0.16 (5.25)**	0.17 (5.47)**	0.18 (5.30)**	0.14 (4.21)**	0.13 (4.18)**
Initial Income (1980 US Dollars, Logs)	-1.02 (-6.20)**	-0.99 (-6.59)**	-0.98 (-6.03)**	-1.40 (-7.03)**	-1.30 (-6.31)**
Inflation (Percent, Logs)	-0.26 (-2.07)**	-0.17 (-1.53)	-0.17 (-1.48)	-0.24 (-2.16)**	-0.29 (-2.41)**
Institutional Quality <sup>1</sup>	0.61 (3.90)**	0.53 (3.45)**	0.49 (2.92)**	0.52 (3.52)**	0.59 (3.89)**
Average Years of Schooling	0.34 (3.34)**				0.23 (2.04)**
School Enrolment, Secondary (% Gross)		0.03 (3.26)**			
Literacy Rate (Adult Total, % of People Ages 15 and Above)			0.02 (1.88)*		
Life Expectancy at Birth (Years)				0.08 (3.83)**	0.05 (2.14)**
<i>R</i> -squared	0.63	0.60	0.59	0.62	0.65
Adjusted <i>R</i> -squared	0.60	0.58	0.56	0.60	0.62
No. Observations	64	67	59	67	64

*Notes:* Estimation is by OLS. *T*-statistics in parentheses. \*Denotes significance at the 10 percent level.

\*\* Denotes significance at the 5 percent level.

<sup>1</sup>Average of four indicators, rescaled to range from 1–12, including bureaucratic quality, corruption, rule of law, and government stability.



Furthermore, the results in Table 1 indicate that a higher quality of human capital—that is, higher levels of educational attainment or better health indicators—is indeed associated with higher real per capita growth rates. The coefficients for each of the education and health indicators used have the expected sign and are highly significant. Interestingly, the relevance of the human capital indicators is independent of the overall institutional quality. Also, the results furthermore indicate that both education and health indicators influence growth independently of each other.<sup>8</sup>

To highlight the relative importance of the various determinants of growth, Table 2 shows the standardised Beta coefficients from the equations shown in Table 1.<sup>9</sup> These Beta coefficients suggest that raising investment has the biggest impact on growth, but that improving a population's health and education also have a sizeable effect that is comparable to improving a country's institutions.

Table 2

	<i>Standardised Coefficients</i>				
	(1)	(2)	(3)	(4)	(5)
Dependent Variable: Average Growth of Real Per Capita GDP, 1980-2002					
Investment Ratio (Percent of GDP)	0.46	0.44	0.51	0.44	0.41
Initial Income (1980 US Dollars, Logs)	-0.56	-0.61	-0.56	-0.63	-0.63
Inflation (Percent, Logs)	-0.18	-0.16	-0.15	-0.13	-0.19
Institutional Quality <sup>1</sup>	0.39	0.33	0.32	0.36	0.39
Average Years of Schooling	0.37				0.19
School Enrolment, Secondary (% Gross)		0.43			
Literacy Rate (Adult Total, % of People Ages 15 and Above)			0.25		
Life Expectancy at Birth (Years)				0.46	0.30

<sup>1</sup>Average of four indicators, rescaled to range from 1–12, including bureaucratic quality, corruption, rule of law, and government stability.

#### IV. IMPLICATIONS FOR PAKISTAN

What do these regression results imply for Pakistan? Currently, government spending in Pakistan on health and education—both as a proportion of GDP and per capita—is among the lowest levels in the world, although there has been a significant increase over the past few years. Not surprisingly, social indicators are also relatively weak. Pakistan ranked 135th out of 177 countries covered by the United Nations Development Programme's 2005 Human Development Index. Pakistan ranked particularly poorly in terms of educational attainment, but ranked better in terms of life expectancy.

<sup>8</sup>Of course, they could also have a joint effect as well. This could be tested by explicitly introducing an interactive term.

<sup>9</sup>The standardised coefficients are what the regression coefficients would be if all the variables were measured on the same scale.

Surprisingly, Pakistan's poor social indicators do not appear to have had a major negative impact on its growth performance. Table 3 presents the average values of each variable used in the analysis for the entire sample, as well as country values for selected countries in South and Southeast Asia. As mentioned previously, Pakistan's average annual rate of economic growth has been about 5 percent, or somewhat over 2 percent per capita. This is significantly better than the average performance of the 72 countries included in the full sample, where the annual per capita growth rate was less than 1 percent, despite education indicators in Pakistan being lower than the sample averages. Pakistan's economic growth rates were broadly similar to those elsewhere in South Asia, although India has been growing at a faster pace, as has Sri Lanka on a per capita basis.<sup>10</sup> But Pakistan's performance was significantly weaker than China, Malaysia, Singapore, South Korea, or Thailand. These countries recorded real per capita growth rates of 3½–8 percent on average per year during the period 1980–2002. Pakistan is clearly not a “tiger” even though its growth rate last year was in the same league as the fastest-growing economies of Southeast Asia. Sustaining this growth rate over a long period of time, as the Southeast Asian economies have done, will be necessary to join the club.

Table 3

*Factors Determining Growth: Selected Asian Countries*

	Per Capita						Average Years of Schooling
	Real GDP Growth	Real GDP Growth	Investment Ratio	Inflation	Institutional Quality	Life Expectancy	
Pakistan	4.9	2.2	18.6	7.8	5.6	59.5	3.2
Bangladesh	4.2	2.0	18.9	8.0	3.4	55.5	2.2
India	5.5	3.4	22.9	8.6	6.6	59.3	4.1
Sri Lanka	4.5	3.0	25.3	11.8	5.4	70.5	6.2
Malaysia	6.3	3.5	32.6	3.4	7.9	70.9	6.3
Singapore	6.9	4.2	36.8	2.1	10.0	75.5	6.0
Thailand	6.0	4.6	30.9	4.9	7.5	67.5	5.6
South Korea	6.8	5.6	32.7	6.5	7.7	70.5	9.6
China	9.5	8.2	37.1	6.6	7.1	69.0	5.0
Sample Average <sup>1</sup>	3.1	0.8	21.3	62.8	5.9	58.5	4.0

Sources: IMF *World Economic Outlook*; World Bank *Development Indicators*; ICRG; and Barro and Lee (2000).

<sup>1</sup>Full sample of 72 countries.

Could Pakistan have achieved higher growth rates if it had invested more in its human capital? Earlier studies by Husain (1999) and Easterly (2001) argue that Pakistan systematically underperforms on most social indicators for its income level and that it could indeed have achieved higher growth rates if it had focused more on human capital accumulation. Easterly attributes this “growth without development”

<sup>10</sup> For an analysis of growth in South Asian countries, see Guha-Khasnobis and Bari (2000).

to domination by an élite, and to ethnic division, which both contributed to low levels of spending on health and education. While one can dispute the causes for low social expenditures, one cannot deny that Pakistan has some of the worst social indicators in South Asia, although there are some signs of improvement in the last few years.

Table 4 shows the contributions to growth, calculated using the regression results in Table 1 (specifically using Equation (1)). Growth in the Southeast Asian countries has been higher than in Pakistan—or most other countries in South Asia—predominantly because of higher levels of investment, a better quality of institutions, and also because of a higher level of educational attainment. In the sample period, investment ratios were significantly higher in Southeast Asian countries than they were in South Asian countries, including Pakistan. Similarly, the countries in Southeast Asia scored considerably better in terms of institutional quality, while average levels of educational attainment in most South Asian countries, with the exception of Sri Lanka, were much less than those in Southeast Asia.

Table 4

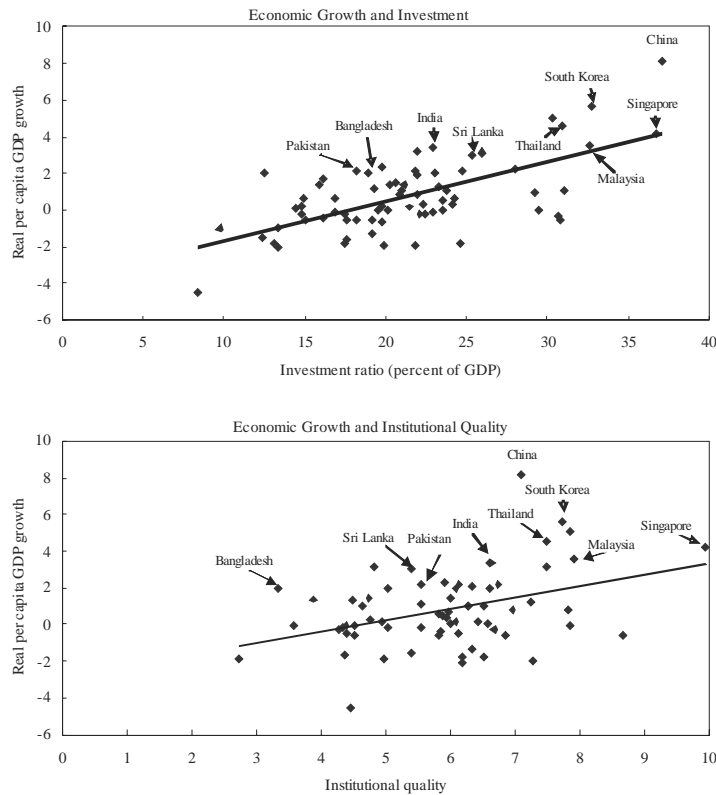
*Factors Determining Growth: Selected Asian Countries*

	Per Capita					Average	
	Real GDP	Investment	Initial	Inflation	Institutional	Years of	Residual
	Growth	Ratio	Income		Quality	Schooling	
Pakistan	2.2	3.0	-6.0	-0.2	3.4	1.1	0.9
Bangladesh	2.0	3.0	-5.3	-0.2	2.1	0.8	1.7
India	3.4	3.6	-5.7	-0.2	4.1	1.4	0.2
Sri Lanka	3.0	4.0	-5.7	-0.3	3.3	2.1	-0.4
Malaysia	3.5	5.2	-7.7	-0.1	4.8	2.1	-0.9
Singapore	4.2	5.9	-8.7	-0.1	6.1	2.0	-1.0
Thailand	4.6	4.9	-6.7	-0.2	4.6	1.9	0.0
South Korea	5.6	5.2	-7.6	-0.2	4.7	3.3	0.2
China	8.2	5.9	-5.9	-0.2	4.3	1.7	2.2
Sample Average <sup>1</sup>	0.9	3.5	-7.3	-0.5	3.6	1.4	0.2

Sources: IMF *World Economic Outlook*; World Bank *Development Indicators*; ICRG; and Barro and Lee (2000).

<sup>1</sup>Sample size of 74 countries used in Equation (1) of Table 1 due to missing data.

The results of this analysis suggest that the best way to achieve higher rates of economic growth still is to raise the level of investment and to improve the quality of institutions. Figure 2 illustrates the link between these two factors and real per capita growth and shows where various countries, including Pakistan, are. This finding supports putting an increased emphasis on increasing private and public investment,

**Fig. 2. Economic Growth, Investment, and Institutions.**

Sources: IMF *World Economic Outlook*; World Bank *World Development Indicators*; and *International Country Risk Guide*.

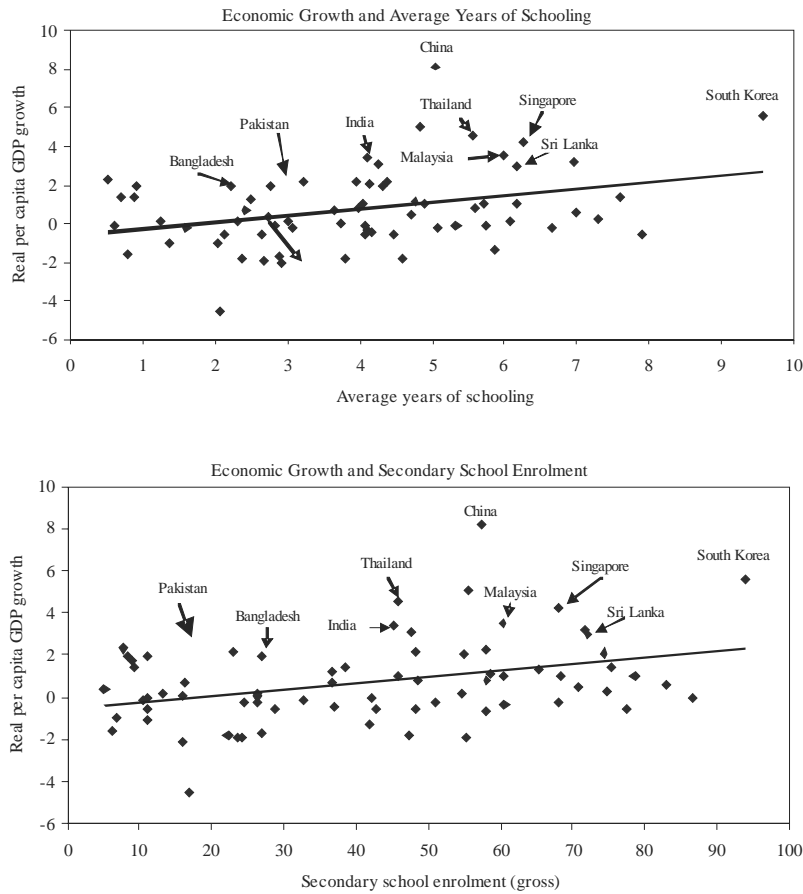
while improving the institutional framework. Investment in Pakistan, at around 16–17 percent of GDP over the past few years, is undoubtedly too low; most fast-growing countries have an investment ratio of over 25 percent.<sup>11</sup> An increase in investment ratio by 5–6 percentage points, as the Government of Pakistan aims to achieve over the medium term—to a level comparable to that of Sri Lanka—could result in an increase in the country’s annual real per capita GDP growth rate of about 1 percentage point. In addition, the pace of economic growth in Pakistan can be raised further by improving the quality of its institutions. On a scale from 1–12, with a higher value representing better institutions, Pakistan had a score of 5.6 on average

<sup>11</sup>It has been argued that Pakistan’s investment rate is underestimated because investment is not properly measured. However, this is only a conjecture as there is no statistical backing for this hypothesis.

during 1980–2002. By increasing this score by 1 point—to a level comparable to that of a country such as Egypt—Pakistan could raise its real per capita growth rate by about another  $\frac{1}{2}$  percentage point per year. These values are the targets the Government of Pakistan should set for itself.

But education matters as well. The results suggest that lower investment in education in Pakistan at least partly accounted for the growth differences vis-à-vis Southeast Asian countries. Figure 3 suggests that the link between growth and education appears less strong than that between growth and investment or institutional quality, but the link is certainly there. All the Southeast Asian countries

**Fig. 3.**



Sources: IMF *World Economic Outlook*; World Bank *World Development Indicators*; and Barro and Lee (2000).

can be found in the upper right-hand corner of each of the panels, while South Asian countries, except for Sri Lanka, lie on the left side. Pakistan scores better than Bangladesh when the education indicator is average years of schooling, but is at the bottom of South Asian countries when secondary school enrollment is used as a proxy. India ranks higher than Pakistan in all the major determinants of growth, and as expected, experienced better growth performance.

It therefore follows that Pakistan could increase its rate of economic growth by investing more in human capital. The government has already started to make such investments in the last few years and aims to continue to do more in the years ahead. Despite considerable fiscal adjustment, social spending was raised by about one percentage point of GDP in the last three years, or by over 30 percent in real per capita terms. While the effect that increasing investment in human capital would have on growth would be somewhat smaller than that of raising investment or improving the overall quality of institutions, the impact would still be significant. For example, the average years of schooling received by Pakistan's population 15 years and older was 3¼ years. Raising this by 1½–2 years—to the levels of countries such as Thailand or Venezuela—would be a major achievement, as it could raise the real per capita growth rate permanently by about ½ percentage point per year. Improving health care to achieve an increase in the life expectancy of Pakistan's population by five years—to levels comparable to that of countries such as Morocco or the Philippines—would add another ½ percentage point to its annual real per capita growth rate. Within the region, Sri Lanka is a good example of a country that has better social indicators and has achieved somewhat stronger per capita growth rates than Pakistan, despite its prolonged ethnic strife.

Just as importantly, for a low-income country such as Pakistan, besides fostering economic growth by having a more productive work force, investing in human capital benefits the poor directly by improving their current and future living conditions. The majority of people in low- and middle-income countries do not possess many assets other than their own human capital. Without assets, their economic well-being depends largely on developments that are external to them, leaving them vulnerable to adverse circumstances and shocks. The possibility to improve their situation will depend to a very large extent on how productive they can be. This in turn depends, among other things, on the educational possibilities that are available to them. Better education will obviously allow the poor the opportunity to get better jobs and better incomes. Over time, this will enable them to start to accumulate assets, reducing the risk that they will fall back below the poverty line when economic conditions worsen. Pakistan is still very much a society with a small, well-educated upper class, a relatively small middle class, and a very large lower class that is poorly educated. The potential gains from improving the quality of, and the access to, education are therefore enormous.

A few caveats before concluding are in order. First, higher spending on education (and health care) should be well-targeted to specifically include the poor. This implies an emphasis on primary and secondary levels of education and basic health care, as opposed to more spending on higher education and more specialised health care. The richer segments of the population can be expected to benefit more from the latter, which would perpetuate the divide between the poor and the rich. Second, given the poor quality and limited availability of government-financed education and health care, a growing number of people rely on private service providers. The massive expansion in the last decade or so in private schools (e.g., Beaconhouse) and universities (e.g., LUMS), as well as private clinics, is clear evidence of this trend. The data used in this study does not capture this. Private health care and education, however, is naturally not accessible to the poor, thus also continuing the divide between the haves and have-nots. Third, care should be taken that higher spending on health and education is used effectively. The quality of public services in Pakistan, as well as in other low- and middle-income countries, has often been poor, due to weak institutional capacity, or other factors, including corruption. Higher social spending will, therefore, need to be accompanied by improvements in institutional capacity—to ensure that the funds are used efficiently and effectively—if it is to have the desired positive effect on future economic growth and poverty reduction.

## V. CONCLUDING REMARKS

To conclude, the empirical results presented here support the traditional view that raising investment and improving institutions are key to achieving higher rates of economic growth. But the results also confirm that countries that invest more in their human capital do better in terms of economic growth. Higher levels of education and better health care result in a more productive work force, increasing total factor productivity, and pushing a country's production function outward.

Compared to a large group of low- and middle-income countries, Pakistan's performance in terms of per capita economic growth has been better than average during 1980–2002 and broadly similar to that of other countries in South Asia. But several countries in Southeast Asia, such as Malaysia, Singapore, South Korea, and Thailand achieved considerably higher rates of economic growth. Besides having higher rates of investment and better institutions, the quality of human capital in these countries was significantly better than in Pakistan, widening the growth differentials vis-à-vis Pakistan. This implies that Pakistan could have achieved even higher growth rates, had it invested more in its human capital. Thus higher social spending has to be priority in the Government of Pakistan's development strategy, in addition to the need to attract more domestic and foreign private investment and to further improve the overall quality of the country's institutional framework. Substantial resources will be required in the coming years to provide better schooling

and health care. But if used effectively, this can prove to be a most worthy investment, offering the possibility of Pakistan entering into a virtuous cycle of sustained high economic growth and steady improvement in living conditions of the population.

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## Comments<sup>1</sup>

### 1.

It is indeed a pleasure for me to comment on Dr Mohsin Khan's paper. He is one of Pakistan's most renowned and internationally recognised economists.

It is also good to see Dr Mohsin moving out of his traditional domain of monetary economics. Who says a leopard never changes its spots!

This is a "neat" and "well-constructed" paper with all the elements carefully spelled out. I enjoyed reading it and do not have any serious problems with some of the broad conclusions reached.

The paper can be divided into two parts. The first is an attempt to explain Pakistan's relative growth performance. This is based on cross-country analysis of a sample of 72 low- and middle-income countries, including Pakistan, for the period 1980–2002. The second draws on the results of this analysis to suggest measures by which Pakistan could further improve and sustain its growth performance.

Pakistan's growth performance has always confounded its critics. Indeed the author acknowledges that "Pakistan's growth performance in recent years is a puzzle". Here I assume he refers to not just the period of the last few years i.e. 2002–2005 but the overall period of over 20 years that he covers in his study. As the author convincingly shows that despite relatively low investment rates, educational levels and the quality of its institutions Pakistan's economy has performed on average relatively better and indeed its growth performance (as measured by the growth of real per capita GDP) has been quite creditable. He then poses the important question. *What explains the growth performance of Pakistan?*

The model he builds up and tests with cross-country regression analysis goes beyond the traditional determinants of growth, namely the levels of investment. He includes in his model the quality of human capital captured by educational and health indicators, besides what has now become fairly standard, but still difficult to define or measure, namely sound economic policies and overall quality of institutions.

Here I must commend the paper for the excellent review of the literature and the open-minded way the author acknowledges the difficulties, relying on recent and indeed earlier studies, in explaining what ignites and sustains economic growth.

<sup>1</sup>I must apologise for the fact that I misplaced the original comments that I made on the paper at the Conference. I have tried to reproduce what I can recall of the comments I made but it is possible that on re-reading the paper I may now be adding some additional comments which were not originally made and which therefore could not be taken into account by the author in revising his paper.

Indeed it is somewhat unfortunate that he does not go back to some of the interesting insights that his literature review reveals in interpreting the results of his cross-country analysis although I acknowledge the difficulties he may face in doing so. I refer especially to the study covered in his review by Hausmann, Pritchett and Rodrik (2004) which finds that a country has a one-in-four chance to experience a growth acceleration sometimes during a decade but that these bursts tend to be highly unpredictable and that the vast majority of growth takeoffs are unrelated to standard determinants such as an increase in investment or trade. Also interesting is the review on the relationship between economic growth and the quality of labour as reflected in educational or skill levels and the important caveat the author makes that return on investment in education or skills development is closely linked to or dependent on the availability of suitable infrastructure, sound institutions and indeed an overall growth promoting environment.<sup>2</sup>

As in the review of the growth literature, where the author acknowledges that there is some “good news” and some “bad news”, the implications of the results of his cross-country analysis for Pakistan has both “good” and “bad” news. Somewhat sadly, however, there is “no news” to explain why Pakistan has done as well as it has!

The good news from Pakistan’s point of view is that it has done fairly well in achieving the growth rate that it has in comparison with other developing countries despite its relatively poor social, economic and institutional indicators. The bad news is that its performance could have indeed been even better, as was the case of a number of South-east Asian economies, if it had improved on these indicators.

What then explains Pakistan’s above average economic performance in the period 1980–2002 and indeed the spurt in economic growth in the more recent period 2002–2005? Is it that we are not measuring well the explanatory variables or/and that we are leaving out some critical factor or factors which could solve Pakistan’s growth puzzle?

As regards the former (i.e. measuring accurately the explanatory variables) and this is becoming all the more controversial when we try to explain Pakistan’s economic performance in the more recent years i.e. 2002–2005, are the official estimates of investment, a key variable in explaining both absolute and relative growth performance. As my friend Dr Naved Hamid, who was Asian Development Bank’s lead economist in Islamabad during 2002–2006, repeatedly pointed out that “we see investments taking place all over the economy except in the statistics”!

While the difficulties of measuring the overall level of investment in Pakistan as in any other developing country is well acknowledged, especially private investment, showing conclusive proof of this is somewhat more difficult although it is an exercise which should be seriously undertaken especially for the more recent

<sup>2</sup>This was an important conclusion reached by the ILO’s World Employment Report, 1997-98, on *Employability in the Global Economy: How Training Matters*, Geneva, 1998.

years when it is claimed that investments in telecommunications and some other new fast growing sectors were not being fully reflected in the official investment series. That said, it could be argued that the recent spurt in economic growth is the result of better capacity utilisation of the existing capital stock and without new and therefore higher levels of investment not sustainable.<sup>3</sup> While growth has slightly dipped in the last year i.e. 2005-06 it is still early to test out this hypothesis.

On the social indicators i.e. literacy, education and health indicators there is little dispute of Pakistan's very poor performance. Yet I might add here that formal educational levels and skill levels of a work force, mostly acquired on-the-job, may not always be closely related and this is perhaps true to some extent in Pakistan where the traditional *ustaad-shagird* system has been the main vehicle of acquiring skill for mostly poorly educated workers. But this in no way deters from the fact that Pakistan's economic performance definitely suffers due to its poor education and health indicators and, as the author points out it now faces severe skill shortages as economic growth has spurred in recent years.

What then of good economic management and quality of institutions? The author uses the level of inflation as a proxy for the former and an index built on the average of four indicators rescaled from 1-12, including bureaucratic quality, corruption, rule of law and government stability. On inflation levels as reflecting good economic management there is obviously room for doubt especially when one views Pakistan's economic performance post-1999 when the first three years witnessed little growth with low rates of inflation and post-2002 has seen high growth rates with high inflation rates. Yet overall, with caveats, one could live with it in a cross-country analysis.

On the quality of its institutions again it would take a lot to disagree with the measure that shows that Pakistan does not perform well. In this context it may be of some interest to note that if one views Pakistan's growth performance over the last almost now sixty years, except for the early years of the 1950s, Pakistan's economy on the growth front has performed much better under a military or semi-military rule than under a democratically elected civilian government. This contrast is especially apparent when we compare the period 1988-98 when Pakistan went through a period of democratically elected governments with the post-1999 rule of General Parvez Musharraf.

I raise this issue because it does find some resonance with the review by the author of the recent literature on "growth accelerations" and the study by Hausmann, *et al.* (2004) cited earlier that finds growth accelerations being correlated amongst others with "political regime changes". An important point the Hausmann study makes is that growth accelerations tend to be highly unpredictable and as Rodrick

<sup>3</sup>Dr Mohsin Khan made this point in his concluding remarks following the discussion on his paper.

(2003), again cited by the author, argues that “igniting economic growth and sustaining it are two quite different things”.

I make this slight detour not to suggest that we equate “military-rule” with good economic management or for that matter good governance even in the context of Pakistan where we have seen that spurts of economic growth under such rule have been followed by serious economic and political upheavals (e.g. break-up of Pakistan following Ayub’s almost 11 years of military rule), to which the military intervention may itself have contributed. The point really is that while you could have better economic management under a military rule which employs competent technical economic managers (as did Gen. Musharraf on taking over) and is subject far less to accommodate “unreasonable” economic demands thrown up in a democratic polity there is still no guarantee of such an economic upturn being economically sustainable or politically desirable in terms of its long term consequences.

Let us now turn to the second part of the study and raise a query. To what extent can you rely on a study to identify factors which could contribute to “Pakistan entering a virtuous cycle of high growth and improved living conditions of the population” based on results which explains very well the relative growth performance of a large sample of developing countries (including Pakistan) but ultimately explain very little of Pakistan’s past economic performance? Here I must confess that my answer, even though a guarded one, is very much “Yes” you can. The factors which the study identifies based on the cross-country analysis may not explain well the past but are all of critical importance if Pakistan is to enter this virtuous cycle. And in a fast changing highly competitive global economy improving the quality of its human resources is going to be critical, as the study points out, if Pakistan is to achieve or sustain high rates of economic growth.

So to end, there is much to learn from this well crafted study and indeed much which Pakistan’s policy-makers can draw upon. But are we anywhere near to solving the “mystery” or “puzzle” (as the author terms it) of Pakistan’s relatively good past growth performance? The answer is that we still have a long way to go. After all what good is a “mystery” if you can “solve it” with some simple or even multiple regression analysis!

**Rashid Amjad**

International Labour Organisation (ILO),  
Geneva.

## 2.

Dr Khan has presented an insightful paper on the relationship between human capital and economic growth in Pakistan. The issue is of considerable interest for developing countries like Pakistan that are faced with the challenge of improving their growth prospects on a sustained basis through investments in physical and human resources. The analysis is based on the estimation of cross-country growth regressions derived from a standard Cobb-Douglas production function which is augmented to include quality of labour. Besides indicators of human capital, the model specification includes investment, initial income, macroeconomic policy, and institutional quality as key determinants of economic growth. The results show that economic growth is influenced positively and significantly by indicators that reflect the quality of human capital such as average years of schooling, school enrollment, literacy rate, and life expectancy at birth. The evidence of a strong negative relationship between initial income and economic growth confirms the hypothesis of convergence. Similarly, macroeconomic stability and quality of institutions is found to have a significant and favourable impact on economic growth. These findings are mostly in line with earlier cross country studies of economic growth.

To begin with, let me highlight two distinguishing features of the study. First, the paper ties in three strands of literature on economic growth, and thus offers insights into a number of fundamental questions that have long occupied analysts and growth theorists. On the one hand, the paper captures elements of new or endogenous growth theory by emphasising the role of human capital in the process of economic growth. The new growth theory focuses on human capital as a key driver of innovations and as a facilitator for the adoption of new technologies. Despite the lack of strong empirical support for the endogenous growth theory at the macro level, which has been partly attributed to the difficulty in devising an appropriate measure of human capital, its theoretical predictions continue to receive wide support in academic and policy circles.

Second, the paper blends with the literature that emphasises the role of institutions in economic development and growth, the so-called “institutionalist” school of thought. In recent years, the role of institutions has received a great deal of attention among growth theorists, who stress that institutions such as property rights, rule of law, and markets, etc. play an important role in the process of economic growth. It is argued that these institutions reduce information costs, encourage capital formation and capital mobility, and allow risks to be priced and shared, all of which positively influence economic growth. Also, there is a strong view that

countries with better institutions, more secure property rights, and less distortionary policies will invest more in physical and human capital, and will use these factors more efficiently to achieve a greater level of income. These views have been confirmed empirically by many studies which demonstrate that various indicators of institutional quality including participatory and democratic institutions, the rule of law, and social insurance are important determinants of economic growth. Recent research on the role of institutions has attempted to look deeper into the sources of institutional differences across countries, the channels through which institutions may affect economic performance, and the quantitative importance of these links.

Third, the paper addresses the issue of convergence that has been extensively debated in the literature and the central question here is whether there has been a tendency for real per capita income differences between rich and poor countries to narrow significantly over the long run. Since poorer countries are generally considered to have capital-labour ratios below their long-run optimum, their rate of return on fixed investment should be higher than in richer countries. Consequently, there should be a systematic tendency for poorer countries to grow faster than rich countries until they have “caught up” with the levels of income per head in the latter. From an economic policy point of view, the issue of convergence or divergence is very important. In the case of rapid convergence, this would point to the functioning of market forces, which will eventually lead to similar living standards across countries. In the case of slow convergence or persistently large or widening gaps between poor and rich countries, there could be a need for economic policy measures to stimulate a catch-up process.

The second notable feature of the paper is that it brings the issue of poverty into the spotlight alongside the human capital-economic growth nexus. This is particularly relevant for developing countries like Pakistan where poverty remains a major challenge. Human capital is both the means and an end of economic growth. While human capital is a powerful engine of economic growth, the ultimate aim of economic development and growth is improvement in human welfare in terms of improved education, health and income opportunities. Therefore, investing in human capital can help achieve the dual objectives of higher growth and better economic prospects especially for the poor.

The paper spells out three major implications of the analysis for Pakistan. First, in view of the fact that public spending on education and health has been historically low in Pakistan, there is considerable scope for enhancing growth through investing more in human capital. It is rightly emphasised that priority must be accorded to primary and secondary education and basic healthcare, and social spending must be targeted so as to ensure that the poorer segments of society also have adequate access to public education and healthcare. Second, increased social spending must go hand in hand with improvement in the efficiency of public expenditures. Third, there is a need to increase private and public investment

together with efforts to improve the institutional framework. These measures would not only help Pakistan sustain its growth momentum in the medium to long term but also contribute to an improvement in the living conditions of the poor.

While I agree with the conclusions and the policy implications, I would like to add that the need for human resource development is all the more compelling in the context of increasing global economic integration. In a highly competitive global market, the developing countries like Pakistan can not hope to compete effectively and diversify their production base without imparting the requisite skills to their workers. In the case of Pakistan, research has shown that there is a mismatch between supply of and demand for various types of skills. There is, therefore, a need to develop and support demand-driven skill development programmes which would help the country maximise the gains from improved market access made possible by a liberal global trading regime.

To conclude, I would like to congratulate Dr Khan on presenting a thoughtful paper on the role of human capital in the growth process. The paper is a valuable contribution to the growth literature and is expected to generate further interest and debate on the issues raised in the paper.

**Musleh-ud Din**

Pakistan Institute of Development Economics,  
Islamabad.