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**Convergence of Per Capita GDP Across SAARC  
Countries**

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### *Abstract*

In this paper we have examined the issue of convergence of per capita GDP across 7 South Asian countries during 1960-2000 using World Bank data. Empirical results failed to find evidence of  $\sigma$  convergence,  $\beta$  convergence and conditional  $\beta$  ( $\beta^c$ ) convergence in South Asia. The reasons for non-convergence of per capita GDP can be explained by low and falling volume of intra-country trade, weak governance and low level of growth achieved by the individual countries. Further, non-convergence can be attributed to explanations provided by endogenous growth models.

Key words: Per Capita GDP, Convergence.

JEL Classification: C21, O18

## Convergence of Per Capita GDP across SAARC Countries

### I Introduction

The concept of convergence is well known in the literature implying "forces accelerating the growth of nations who were latecomers to industrialization and economic development give rise to a tendency towards convergence of levels of per capita product or, alternatively of per worker product" Baumol (1986:1075). David Hume contended that transfer of technology to be a driving force for convergence of poorer and richer countries by enlarging the size of their markets.

Conceptually, two broad concepts of convergence can be discerned, namely ***b** convergence* and ***s** convergence*<sup>1</sup>. The former relates to *convergence* of per capita income through the "catching up process" while the latter signifies the convergence of cross-sectional dispersion of per capita income (Barro and Sala-i-Martin, 1995). Convergence (***s***) occurs if the dispersion (inequality) of per capita *declines* over time. It is contended that ***b** convergence* tends to generate ***s** convergence*. Hence, economists place inordinate emphasis on the study of growth process only to find "this process is offset by new disturbances that tend to increase dispersion." (Barro and Sala-i-Martin, 1995:383). Thus, it may be weakly stated that ***b** convergence* may be a necessary but not a sufficient condition for ***s** convergence*<sup>2</sup>. After all, economic growth and income inequality are generated by complex and myriad factors of which income is only one of them.

Economic theory suggests reasons why poor countries may "catch up" with rich countries over time in terms of per capita income. In particular, the Solow-Swan neoclassical growth model predicts that capital will flow from rich to poorer

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<sup>1</sup> A third concept of convergence namely conditional ***b** convergence* is often talked about which takes into account the non-identical nature of steady-state growth path for per capita output for various countries.

countries, thereby promoting faster economic growth in the latter. The key underlying assumption is that there are diminishing returns to capital. This means that the returns to capital are higher in poor countries, which are relatively poorly endowed with capital, than in well endowed capital rich economies. There is a growing empirical literature on convergence and comprehensive overviews can be found in Rassekh (1998), De la Fuente (1997) and Quah (1996).

For large samples of countries that cut across regions and income levels, most of the evidence fails to support absolute convergence. Although large samples of countries do not display convergence, the evidence of convergence is somewhat stronger for smaller groups of countries specially among countries at similar income levels. Ben David (1998) and Chatterji (1992) find empirical evidence of convergence among the world's richest and poor countries although they fail to do so for middle-income countries. Galor (1996) and Quah (1997) provide theoretical justifications for the convergence club hypothesis, according to which convergence will occur among subsets as opposed to broad samples of countries.

The central objective of this study is to empirically examine whether or not convergence is occurring over time in South Asia. The countries of South Asia have formed a regional block known as South Asian Association for Regional Cooperation (SAARC). SAARC comprises of seven countries: Bangladesh, Bhutan, Nepal, India, Maldives, Pakistan and Sri Lanka. Section II outlines the salient features of the sampled countries. Section III deals with the empirical investigation of the issue of convergence in the sampled countries. Section IV contains a discussion of the results and Section V summarises the major findings of the study.

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<sup>2</sup> Barro and Sala-i-Martin (1995:31) neatly demonstrate that, "... even if absolute convergence holds in our sense, the dispersion of per capita income does not necessarily tend to decline over time."

## **II SAARC: Achieving Unity Among Diversity**

The South Asian region comprising the SAARC countries is unique. SAARC countries differ enormously in size, population and economic development. They also share divergent social, economic and political arrangement. These divergences offer enormous difficulties as well as challenges in the formation of SAARC.

### **Size**

Of the seven SAARC countries, all the countries barring India and Pakistan are small in territorial size. Two countries (Bhutan, Nepal) are land-locked and their contact with the rest of the world virtually depends on the cooperation of India, while Maldives and Sri Lanka are island states. India, by its sheer size, occupies over 70 per cent of the landmass of the region and its territorial and maritime boundary hugs all the SAARC countries. On the other hand, none of the six members have a common boundary with each other. In terms of population figures, India has nearly 90 per cent of the region's population.

India's dominance is not restricted to size only. India's GDP accounts for nearly 77 per cent of the region's GDP in 2000 (World Tables, 2002). In terms of manufacturing value added, India contributes nearly 80 per cent of the region's manufacturing value added and also dominates the export and import volume of the region. Because of her large land area, India is also well endowed with natural resources and minerals and some of these (eg., uranium, iron ore, gold and silver etc.) are exclusive to India alone.

### **Political, Social and Economic Structure**

All the SAARC countries have a turbulent political history. These countries were colonies of the imperial power at a certain stage in their political history. Apart from India, all the SAARC countries lack, to varying degrees, a democratic tradition. The armed forces of some of the SAARC countries have an over-bearing influence on policy making in this region. Some of the countries (India and Pakistan) are involved

in open hostilities and have fought three wars over land rights. Various bilateral issues cause temporary tensions among the SAARC countries, e.g., Ganges water dispute between Bangladesh and India, cancellation of land route permits between India and Nepal, Kashmir and Khalistan issues between India and Pakistan, the Tamil Elam problem between India and Sri Lanka.

However, there are some common elements between the countries of the region. Poverty and under-development is pervasive throughout. They are all heavily dependent on external assistance and foreign aid. The societal organisation is based on feudal traditions giving rise to a hierarchical class structure. All of these countries have ethnic problems because the countries are, to varying degrees, ethnically heterogeneous. The problem is further compounded by the fact that co-ethnic groups exist in the neighbouring states. Although often reflecting ethnic divisions, many of the conflicts within states also have a political or economic character. Hence, this factor alone causes significant tension among countries, even arising from isolated incidents. An example of such an incident might be the destruction of a mosque in India by Hindu fundamentalists which triggers similar retaliation in Bangladesh, Pakistan and India, or the assassination of Mrs Indira Gandhi sparking anti-Sikh riots in India. Because of the presence of ethnic heterogeneity in the SAARC countries, there is a fair amount of acrimony, bitterness, animosity and mistrust among the different ethnic groups, often giving rise to sub-nationalism or parallel nationalism within a given country. Sikhs demanding Khalistan, Chakma's of Bangladesh demanding a separate homeland, Tamils claiming northern Sri Lanka as their homeland are some of the examples of sub-nationalism or parallel nationalism prevailing in the region. These conflicts within states are protracted, with immense material and human costs to the nationals involved. These conflicts also trigger involuntary migration, which creates refugee problems in neighbouring states as millions flee their countries to avoid reprisal, repression and death. These conscious parallel nationalisms are detrimental to the formation of regionalism such as SAARC.

## Economic Performance

Table 1 provides us with a summary of leading macroeconomic indicators for the SAARC countries. Based on these cardinal numbers, Chowdhury (1998) calculated ordinal ranking of the relative performance of the SAARC countries based on the basis of 3 types of characteristics, viz., economic, social and lastly socio-economic indicators<sup>3</sup>. The ranking based on Borda score is reported in Table 2.

**Table 2 Borda Ranking of SAARC Countries: 1970-1990**

<i>COUNTRY</i>	<i>ECONOMIC INDICATORS</i>			<i>HUMAN DEVELOPMENT INDICATORS</i>			<i>COMBINED INDICATORS</i>		
	<i>1970</i>	<i>1980</i>	<i>1990</i>	<i>1970</i>	<i>1980</i>	<i>1990</i>	<i>1970</i>	<i>1980</i>	<i>1990</i>
Bangladesh	4	3	2	2	3	3	3	4	3
India	2	2	5	3	2	1	2	1	1
Nepal	4	5	1	5	4	5	5	5	5
Pakistan	3	1	3	3	4	3	3	3	4
Sri Lanka	1	4	3	1	1	2	1	1	1

Source: Chowdhury (1998) Table 4

## Poverty and Income Inequality

South Asia as a region is poverty ridden with almost fifty per cent of the people living under the poverty line. Massive anti-poverty programmes are in place in all SAARC countries to prevent the proliferation of poverty and optimistic projections are that there will be poverty reduction after trickle down effect of

<sup>3</sup> The economic indicators chosen were: (i) average annual growth rate of GDP; (ii) real GDP per capita; (iii) private consumption share in real GDP; (iv) investment share of real GDP; (v) government consumption as a percentage of GDP; (vi) degree of openness ( $X + M/GDP$ ); (vii) inflation rate; (viii) budgetary position as a ratio of GNP; (ix) current account balance as a ratio of GDP. The social indicators chosen were: (i) percentage of urban population; (ii) life expectancy at birth; (iii) index of per capita food production; (iv) primary school enrolment ratio; (v) secondary school enrolment ratio; (vi) share of bottom 40% of households; and (vii) access to safe water.

**Table 3 Poverty Indicators in SAARC Countries**

<b><u>BANGLADESH</u></b>	<b><u>1990</u></b>	<b><u>Most recent</u></b>	
Population, mid-year, Million	108.9	128.1	(1999)
Annual Growth Rate, 1990 - 1999 (%)		1.8	
Life Expectancy at Birth (Years)			
<i>Female</i>	55	59	(1998)
<i>Male</i>	55	59	(1998)
Per Capita GNP (US\$)	340 (1996)	370	(1999)
Poverty Incidence (National Poverty Line)	47.8 (1988-89)	47.5	(1995-96)
<i>Rural</i>	47.8	47.1	
<i>Urban</i>	47.6	49.7	
Income Ratio: Highest 20% / Lowest 20%	7.0 (1988-89)	8.8	(1995-96)
Gini Coefficient	0.38 (1988-89)	0.43	(1995-96)
<b><u>BHUTAN</u></b>	<b><u>1990</u></b>	<b><u>Most recent</u></b>	
Population, mid-year, Million	0.6 (1994)	0.7	(1999)
Annual Growth Rate, 1994 - 1999 (%)		3.1	
Life Expectancy at Birth (Years)			
<i>Female</i>	59 (1992)	63	(1998)
<i>Male</i>	57 (1992)	60	(1998)
Per Capita GNP (US\$)	410 (1996)	510	(1999)
Poverty Incidence (National Poverty Line)	...	...	
<i>Rural</i>	...	...	
<i>Urban</i>	...	...	
Income Ratio: Highest 20% / Lowest 20%	...	...	
Gini Coefficient	...	...	
<b><u>INDIA</u></b>	<b><u>1990</u></b>	<b><u>Most recent</u></b>	
Population, mid-year, Million	835.1	986.6	(1999)
Annual Growth Rate, 1990 - 1999 (%)		1.9	
Life Expectancy at Birth (Years)			
<i>Female</i>	60	63	(1998)
<i>Male</i>	59	63	(1998)
Per Capita GNP (US\$)	350 (1996)	450	(1999)
Poverty Incidence (National Poverty Line)	38.9 (1987-88)	36.0	(1993-94)
<i>Rural</i>	39.1	37.3	
<i>Urban</i>	38.2	32.4	
Income Ratio: Highest 20% / Lowest 20%	...	5.7	(1997)
Gini Coefficient	...	0.38	(1997)

continued...



<b><u>MALDIVES</u></b>	<b><u>1990</u></b>	<b><u>Most recent</u></b>
Population, mid-year, Million	0.2	0.3 (1999)
Annual Growth Rate, 1990 - 1999 (%)		3.0
Life Expectancy at Birth (Years)		
<i>Female</i>	61	64 (1998)
<i>Male</i>	62	66 (1998)
Per Capita GNP (US\$)	1110 (1996)	1160 (1999)
Poverty Incidence (National Poverty Line)	...	40.0 (1994)
<i>Rural</i>	...	...
<i>Urban</i>	...	...
Income Ratio: Highest 20% / Lowest 20%	...	...
Gini Coefficient	...	...
<b><u>NEPAL</u></b>	<b><u>1990</u></b>	<b><u>Most recent</u></b>
Population, mid-year, Million	18.1	22.4 (1999)
Annual Growth Rate, 1990 - 1999 (%)		2.4
Life Expectancy at Birth (Years)		
<i>Female</i>	53	58 (1998)
<i>Male</i>	54	58 (1998)
Per Capita GNP (US\$)	210 (1996)	220 (1999)
Poverty Incidence (National Poverty Line)	...	42 (1996)
<i>Rural</i>	...	44
<i>Urban</i>	...	23
Income Ratio: Highest 20% / Lowest 20%	...	5.9 (1996)
Gini Coefficient	...	0.37 (1996)
<b><u>PAKISTAN</u></b>	<b><u>1990</u></b>	<b><u>Most recent</u></b>
Population, mid-year, Million	108.0	134.5 (1999)
Annual Growth Rate, 1990 - 1999 (%)		2.5
Life Expectancy at Birth (Years)		
<i>Female</i>	60	66 (1998)
<i>Male</i>	58	63 (1998)
Per Capita GNP (US\$)	510 (1996)	470 (1999)
Poverty Incidence (National Poverty Line)	17.3 (1987-88)	32.6 (1998-99)
<i>Rural</i>	18.3	34.8
<i>Urban</i>	15.0	25.9
Income Ratio: Highest 20% / Lowest 20%	8.6	7.1 (1996-97)
Gini Coefficient	0.4	0.4 (1996-97)
<b><u>SRI LANKA</u></b>	<b><u>1990</u></b>	<b><u>Most recent</u></b>
Population, mid-year, Million	17	19 (1999)
Annual Growth Rate, 1990 - 1999 (%)		1.3
Life Expectancy at Birth (Years)		
<i>Female</i>	74	76 (1998)
<i>Male</i>	69	71 (1998)
Per Capita GNP (US\$)	750 (1996)	820 (1999)
Poverty Incidence (National Poverty Line)	30.4 (1990-91)	26.7 (1995-96)
<i>Rural</i>	34.7	28.7
<i>Urban</i>	18.2	13.4
Income Ratio: Highest 20% / Lowest 20%	9.9 (1990-91)	11.4 (1995-96)
Gini Coefficient	0.47 (1990-91)	0.48 (1995-96)

Source: Asian Development Bank Data Bank.

economic growth has taken place. However, income inequality is low within the region but shows an upward trend.

### III The Convergence Hypotheses and Empirical Tests

The concept of convergence can be defined in several ways. According to Sala-i-Martin (1996:1020) "there is  $\beta$ -convergence if poor economies tend to grow faster than rich ones, and a group of economies are converging in the sense of  $\sigma$  if dispersion of their real per capita GDP levels tends to decrease over time." Romer (1996:27) succinctly cites three important reasons for the convergence process. First, the neo-classical growth models predict countries converge to their balanced growth paths. Thus to the extent that differences in output per worker arise from countries being at different points relative to their balanced growth paths, one would expect the poorer countries to catch up to the richer. Second, the Solow model implies that the return on capital is lower in countries with more capital per worker. Thus, capital flow from rich to poor countries will eventuate leading to convergence. Lastly, if there are lags in the diffusion of knowledge, income differences can arise since some countries are yet to employ the appropriate technique of production. These differences can disappear once poorer countries gain access to the cutting edge technology.

Let  $y_{it}$  be the natural logarithm of per capita GDP for economy  $i$  ( $i = 1, 2, \dots, N$ ) during period  $t$  and  $\sigma_t$  be the standard deviation of  $y_{it}$  across  $i$  at time  $t$ . Absolute ( $\sigma$ ) convergence can be tested by estimating the following model:

$$\sigma_t = \alpha + \beta t + v_t \quad (1)$$

where,  $\alpha$  and  $\beta$  are parameters and  $v_t$  is the stochastic error term. A significant negative value for  $\beta$  implies absolute convergence, while  $\beta \geq 0$  implies non-convergence.

$\beta$ -convergence can be tested by running the following regression of growth of per capita GDP across economies:

$$(y_{it} - y_{i,t-T}) = \alpha + \beta y_{i,t-T} + v_t \quad (2)$$

where  $t$  indicates the end of the time interval and  $(t-T)$  is the beginning (initial) of the time interval and  $v_t$  is the stochastic error term. In terms of equation (2) a significant negative value for  $\beta$  implies beta ( $\beta$ ) convergence, while  $\beta \geq 0$  implies non-convergence.

The concept of conditional beta convergence ( $\beta^c$ ) can be derived by augmenting equation (2) by including a set of control variables  $x_i$  (e.g., investment, saving, population, openness etc) that are expected to determine the steady-state growth of per capita output. Thus, conditional beta convergence ( $\beta^c$ ) can be tested by estimating the following model:

$$(y_{it} - y_{i,t-T}) = \alpha + \beta y_{i,t-T} + \gamma x_i + v_t \quad (3)$$

In terms of equation (3) a significant negative  $\beta$  implies convergence holds conditionally when  $\gamma \neq 0$ .

#### **IV Results and Discussion**

Data for annual per capita GDP for 7 SAARC countries from 1960 to 2000 are extracted from the World Bank's World Tables. The result of sigma convergence as given by equation (1) is reported in Table 4. OLS estimate revealed high  $R^2$  and significant  $\beta$  coefficient. However, the model suffered from positive auto-correlation. Hence, Cochrane-Orcutt procedure was applied to correct for serial correlation. The result from this procedure yielded a higher  $R^2$  than OLS but the sign of the  $\beta$  coefficient remained positive and highly significant. Thus we are able to reject absolute convergence across SAARC countries.

**Table 4 Regression Result of Sigma (s) Convergence Hypothesis**

	<b>OLS</b>	<b>Cochrane-Orcutt</b>
<b>time</b>	0.55895E-02	0.52141E-02
t-value	22.52	8.673
<b>Constant</b>	-10.872	-10.126
t-value	-22.12	-8.507
<b>R<sup>2</sup>-Adjusted</b>	0.9267	0.9769
<b>Durbin's d</b>	0.3396	1.5829
<b>B-P-G (DF=1)</b>	5.462	0.724
<b>RESET (2) Test (DF1=1 &amp; DF2=38)</b>	11.681	-22.340

### **Beta Convergence**

The estimation result of equation (2) is given in Table 5. Five initial time periods have been selected namely 1960, 1970, 1980, 1984 and 1990 and regressions have been run compared to these initial time periods. The regressions for any particular period are given under the column heading "Time Period" in Table 5. A careful look at Table 5 reveals that the estimated beta value has never been found to be negative and significant. Secondly, the beta value has been found to be positive and insignificant throughout except for the period 1984-2000 where the beta value was positive and significant. The weight of evidence does not support beta convergence in SAARC countries. To the contrary one can find statistical support for output divergence during 1984-2000. It may be mentioned that prior to 1984, data on per capita GDP for all 7 SAARC countries were not available (e.g., Bhutan and Maldives).

**Table 5 Result of Beta Convergence**

<u>Period</u>	<u>b</u>	<u>t-value</u>	<u>R<sup>2</sup></u>	<u>Period</u>	<u>b</u>	<u>t-value</u>	<u>R<sup>2</sup></u>
1960-70	0.13	0.44	0.06	1970-74	0.05	0.35	0.04
1960-74	0.16	0.45	0.06	1970-79	0.17	0.92	0.22
1960-79	0.32	0.75	0.16	1970-84	0.32	1.62	0.47
1960-84	0.44	0.86	0.20	1970-89	0.27	0.95	0.23
1960-89	0.31	0.51	0.08	1970-94	0.31	1.06	0.27
1960-94	0.41	0.68	0.14	1970-99	0.35	1.10	0.29
1960-99	0.55	1.00	0.25	1970-00	0.35	1.13	0.30
1960-00	0.56	1.06	0.27				
<u>Period</u>	<u>b</u>	<u>t-value</u>	<u>R<sup>2</sup></u>	<u>Period</u>	<u>b</u>	<u>t-value</u>	<u>R<sup>2</sup></u>
1980-84	0.03	0.52	0.06	1984-89	0.09	1.23	0.23
1980-89	0.00	-0.04	0.00	1984-94	0.16	1.92	0.43
1980-94	0.03	0.26	0.02	1984-99	0.26	2.00	0.44
1980-99	0.05	0.28	0.02	1984-00	0.26	1.98	0.44
1980-00	0.05	0.28	0.02				
<u>Period</u>	<u>b</u>	<u>t-value</u>	<u>R<sup>2</sup></u>				
1990-94	0.00	0.06	0.00				
1990-99	0.10	1.79	0.39				
1990-00	0.10	1.62	0.34				

**Conditional Beta Convergence**

Conditional Beta ( $\beta^c$ ) convergence is given by equation (3). The estimation result of equation (3) is summarised in Table 6 below. The control variables included in this exercise are the rates of growth of population ( $\gamma_1$ ) and gross domestic savings as a proportion of GDP ( $\gamma_2$ ). The results show that during the sample period conditional beta convergence has failed to take place in the sampled countries. This is true for all initial reference periods 1960, 1970, 1980, 1984 and 1990. Interestingly, we can find only 2 cases of beta coefficient being significant along with the control variables. During 1980-82 we can see beta convergence, while during 1990-94 we can observe beta divergence. Hence, the weight of evidence seems to indicate that beta convergence failed to take place during the sample period 1960-2000<sup>4</sup>.

<sup>4</sup> In this exercise we also sequentially deleted the control variables to see the presence or absence of convergence but the results did not differ substantially from the one that is reported in Table 6.

**Table 6 Result of Conditional Beta Convergence of Per Capita GDP**

<u>Period</u>	<u>Beta</u>	<u>g<sub>1</sub></u>	<u>g<sub>2</sub></u>	<u>R<sup>2</sup></u>	<u>Period</u>	<u>Beta</u>	<u>g<sub>1</sub></u>	<u>g<sub>2</sub></u>	<u>R<sup>2</sup></u>
1960-70	0.04	25.70	0.01	0.72	1970-74	0.02	-7.37	0.03	0.50
<i>t-value</i>	<i>-0.10</i>	<i>1.41</i>	<i>0.20</i>		<i>t-value</i>	<i>0.07</i>	<i>-0.52</i>	<i>0.68</i>	
1960-74	0.00	17.77	0.03	0.34	1970-79	0.16	-13.48	0.03	0.61
<i>t-value</i>	<i>0.00</i>	<i>0.51</i>	<i>0.25</i>		<i>t-value</i>	<i>0.54</i>	<i>-0.69</i>	<i>0.57</i>	
1960-79	0.15	15.55	0.03	0.32	1970-84	0.22	-5.87	0.05	0.74
<i>t-value</i>	<i>0.15</i>	<i>0.36</i>	<i>0.21</i>		<i>t-value</i>	<i>0.70</i>	<i>-0.28</i>	<i>0.92</i>	
1960-84	0.15	22.96	0.06	0.45	1970-89	0.00	3.70	0.09	0.75
<i>t-value</i>	<i>0.13</i>	<i>0.48</i>	<i>0.34</i>		<i>t-value</i>	<i>0.01</i>	<i>0.15</i>	<i>1.45</i>	
1960-89	-0.20	23.75	0.10	0.45	1970-94	0.10	-5.87	0.09	0.78
<i>t-value</i>	<i>-0.17</i>	<i>0.45</i>	<i>0.54</i>		<i>t-value</i>	<i>0.27</i>	<i>-0.24</i>	<i>1.40</i>	
1960-94	-0.10	6.83	0.10	0.42	1970-99	0.15	-15.73	0.11	0.98
<i>t-value</i>	<i>-0.08</i>	<i>0.31</i>	<i>0.52</i>		<i>t-value</i>	<i>1.11</i>	<i>-1.79</i>	<i>4.57</i>	
1960-99	-0.12	5.44	0.13	0.60	1970-00	0.18	-18.07	0.10	0.98
<i>t-value</i>	<i>-0.12</i>	<i>0.12</i>	<i>0.86</i>		<i>t-value</i>	<i>1.35</i>	<i>-2.07</i>	<i>4.32</i>	
1960-00	-0.07	4.44	0.13	0.59					
<i>t-value</i>	<i>-0.07</i>	<i>0.10</i>	<i>0.82</i>						
<u>Period</u>	<u>Beta</u>	<u>g<sub>1</sub></u>	<u>g<sub>2</sub></u>	<u>R<sup>2</sup></u>	<u>Period</u>	<u>Beta</u>	<u>g<sub>1</sub></u>	<u>g<sub>2</sub></u>	<u>R<sup>2</sup></u>
1980-84	0.02	-2.88	-0.01	0.20	1984-89	0.06	14.39	0.05	0.74
<i>t-value</i>	<i>0.36</i>	<i>-0.42</i>	<i>-0.54</i>		<i>t-value</i>	<i>0.74</i>	<i>1.50</i>	<i>2.34</i>	
1980-89	-0.01	0.51	0.02	0.04	1984-94	0.05	4.27	0.04	0.76
<i>t-value</i>	<i>-0.04</i>	<i>0.03</i>	<i>0.29</i>		<i>t-value</i>	<i>0.74</i>	<i>0.50</i>	<i>2.10</i>	
1980-94	0.02	-7.06	0.01	0.17	1984-99	0.03	-8.28	0.03	0.58
<i>t-value</i>	<i>0.11</i>	<i>-0.40</i>	<i>0.27</i>		<i>t-value</i>	<i>0.16</i>	<i>-0.45</i>	<i>0.81</i>	
1980-99	0.02	-16.65	0.02	0.32	1984-00	0.01	-11.50	0.02	0.59
<i>t-value</i>	<i>0.10</i>	<i>-0.76</i>	<i>0.26</i>		<i>t-value</i>	<i>0.06</i>	<i>-0.63</i>	<i>0.65</i>	
1980-00	0.02	-18.97	0.01	0.36					
<i>t-value</i>	<i>0.08</i>	<i>-0.89</i>	<i>0.16</i>						
<u>Period</u>	<u>Beta</u>	<u>g<sub>1</sub></u>	<u>g<sub>2</sub></u>	<u>R<sup>2</sup></u>					
1990-94	0.01	-3.03	0.00	0.42					
<i>t-value</i>	<i>0.18</i>	<i>-0.96</i>	<i>-0.04</i>						
1990-99	-0.06	-14.15	0.08	0.90					
<i>t-value</i>	<i>-1.14</i>	<i>-3.47</i>	<i>3.46</i>						
1990-00	-0.07	-14.63	0.08	0.83					
<i>t-value</i>	<i>-0.92</i>	<i>-2.71</i>	<i>2.60</i>						

## **Causes of Non-Convergence of GDP in SAARC Countries**

Convergence of per capita GDP remains a polemical issue in growth economics and there is no unambiguous view on the factors that lead to convergence of output across countries. It is postulated that convergence of per capita output results from a combination of economic and non-economic factors. Analytically, there are two broad methodological views that can explain the convergence process across economies. The first being the technological "catching up" hypothesis where technical know-how spreads from the technologically advanced countries to the technologically backward countries causing convergence in per capita output levels. Openness in trade, by removing tariff and non-tariff barriers, is thought to be the driving force in accelerating the adoption and diffusion of appropriate technology across countries. This view is quite dominant in the writings of the classical economists like Adam Smith, David Ricardo, David Hume and even Alfred Marshal. In the modern era this view has also been subscribed by many (Abramovitz, 1986, 1990; Baumol, 1986; Dowrick and Nguyen, 1989; Maddison, 1987, 1991) and the list is not exhaustive.

The second view is derived from the transitional dynamics of the neoclassical growth models. Neoclassical growth models predict that if countries have different capital-labour ratios, their growth paths will eventually converge to a steady-state growth path because of diminishing returns to capital. Even in an extended Solow model, Mankiw *et al.* (1992) are able to show convergence although at a much more slower rate. However, the usual caveat remains, i.e., convergence depends on the simplifying assumptions that markets are perfectly competitive, technical change is exogenous and the level of technology is the same through out. Thus, any failure of convergence can be attributed to the breakdown of these assumptions.

We thus try to explain the various causes with a view to identifying the failure of per capita output convergence as revealed by the empirical results.

### **Intra-regional Trade Structure in South Asia**

Intra-country trade in goods, services and finance among SAARC countries is small compared to the overall trade of the region. If SAARC is to generate mutually beneficial economic gains, trade linkages must be established and strengthened among the member countries. Tables 7 and 8 show the trends in intra-country trade among SAARC countries.

Tables 7 and 8 show that intra-country trade is very low and these figures are steadily declining over time. With the exception of Nepal-India trade, no other



**Table 7 Intra-Country Exports in the SAARC Region**  
(Figures are percentage of total exports)

	BANGLADESH	BHUTAN	INDIA	MALDIVES	NEPAL	PAKISTAN	SRI LANKA
<b>BANGLADESH</b>							
1981	---	na	2.5	0	0	5.3	0.3
1987	---	na	1.0	0	0.5	2.6	0
1991	---	na	1.4	0	0.7	2.3	0.4
1995	---	na	1.2	na	0.3	0.8	0.4
1999	---	0.02	1.1	na	0.1	0.6	0.2
<b>BHUTAN</b>							
1981	na	na	na	na	na	na	na
1987	na	na	na	na	na	na	na
1991	na	na	na	na	na	na	na
1995	na	na	na	na	na	na	na
1999	na	na	na	na	na	na	na
<b>INDIA</b>							
1981	0.7	na	---	na	1.2	0	1.0
1987	1.3	na	---	0	0.6	0.1	0.6
1991	0.9	na	---	3.3	0.3	0.2	0.7
1995	3.1	0.04	---	0.04	0.4	0.2	1.3
1999	2.4	0.05	---	0.02	0.9	0.3	1.4
<b>MALDIVES</b>							
1981	na	na	na	---	na	na	na
1987	0	na	0	---	na	0.1	16.4
1991	0	na	0	---	na	0	19.2
1995	na	na	na	---	na	na	na
1999	na	na	na	---	na	na	na
<b>NEPAL</b>							
1981	11	na	43	na	---	2	0
1987	0	na	24.7	na	---	0.6	1.3
1991	0	na	6.1	na	---	1.5	0
1995	1.2	na	7.7	na	---	na	0.3
1999	1.4	na	27.7	na	---	0.2	7.2
<b>PAKISTAN</b>							
1981	2.0	na	2.3	na	0	---	1.0
1987	2.2	na	0.5	0	0	---	1.2
1991	1.5	na	0.7	0	0	---	1.0
1995	1.9	0.01	0.5	0.01	0.04	---	0.7
1999	1.3	na	1.0	0.01	0.02	---	1.2
<b>SRI LANKA</b>							
1981	0.2	na	2.8	na	0	5.1	---
1987	0.7	na	0.5	0.5	0	2.3	---
1991	0.2	na	1.0	0.4	0	1.5	---
1995	0.3	na	0.8	0.4	na	1.1	---
1999	0.2	na	1.1	0.7	0.05	0.8	---

Source: IMF, Direction of Trade Statistics Yearbooks, IMF, 1988, 1992, 2002.  
'na' denotes - not available

**Table 8 Intra-Country Imports in the SAARC Region**  
(Figures are percentage of total imports)

	BANGLADESH	BHUTAN	INDIA	MALDIVES	NEPAL	PAKISTAN	SRI LANKA
<b>BANGLADESH</b>							
1981	---	na	2.4	na	0	5.3	0.3
1987	---	na	2.8	0	0	1.4	0.2
1991	---	na	5.6	0	0	1.7	0.1
1995	---	0.06	15.3	na	0.06	2.1	0.2
1999	---	0.05	12.3	0.01	0.11	1.0	0.1
<b>BHUTAN</b>							
1981	na	na	na	na	na	na	na
1987	na	na	na	na	na	na	na
1991	na	na	na	na	na	na	na
1995	na	na	na	na	na	na	na
1999	na	na	na	na	na	na	na
<b>INDIA</b>							
1981	0.1	na	---	na	0.3	0.5	0.4
1987	0	na	---	0	0.2	0.1	0
1991	0.1	na	---	0	0.1	0.2	0.1
1995	0.2	na	---	na	0.08	0.1	0.1
1999	0.1	na	---	na	0.35	0.2	0.1
<b>MALDIVES</b>							
1981	na	na	na	---	na	na	na
1987	0	na	3.1	---	na	0.4	8.7
1991	0	na	7.4	---	na	0.4	7.3
1995	na	na	na	---	na	na	na
1999	na	na	na	---	na	na	na
<b>NEPAL</b>							
1981	0.1	na	41	na	---	0	0
1987	1.0	na	14.1	na	---	0.3	0
1991	1.7	na	6.5	na	---	0	0
1995	1.5	na	15.7	na	---	0.4	na
1999	0.4	na	31.0	na	---	0.1	0.1
<b>PAKISTAN</b>							
1981	1.0	na	0.1	na	0.1	---	2.2
1987	0.9	na	0.2	0	0	---	0.9
1991	0.4	na	0.5	0	0	---	0.8
1995	0.3	na	0.7	na	0.01	---	0.4
1999	0.3	na	1.3	na	0.01	---	0.4
<b>SRI LANKA</b>							
1981	.1	na	4.1	na	0	0.1	---
1987	0	na	4.1	0.3	0.1	2.3	---
1991	0.2	na	4.5	0.4	0	2.4	---
1995	0.02	na	9.8	0.02	0.02	1.1	---
1999	0.4	na	10.1	0.1	0.1	1.7	---

Source: IMF, Direction of Trade Statistics Yearbooks, IMF, 1988, 1992, 2002.  
'na' denotes - not available

countries in SAARC have a significant amount of trade with one another. The Nepal-India trade is also waning due to frictions between the two countries over trade and other issues.

This low volume of trade flows between SAARC countries is caused by several factors. First, SAARC countries have similar patterns of resource endowments which favours labour intensive production modes. Hence, gains from specialisation and exchange cannot be meaningfully exploited by these countries with similar factor intensities as postulated by the Heckscher-Ohlin-Samuelson trade theory.

There are certain non-economic factors that also create impediments to the growth of intra-country trade. Amongst them, the perennial hostility between India and Pakistan and Bangladesh has stifled the growth of trade links amongst these countries. Further, all the SAARC countries are dependent on external assistance and aid in order to overcome their current account deficits. External assistance and aid comes with conditionality clauses attached to the packages. The tying of aid alone stifles the creation of intra-regional trade among the SAARC countries.

It is contended that economic growth is spurred by accumulation of physical and human capital and through advances in technology (total factor productivity). Many factors can promote or hinder these processes. Experience shows that countries that have grown rapidly have been successful in creating conditions that are conducive to long-run per capita income growth. These include:

1. Maintenance of macroeconomic stability to foster saving and investment;
2. Liberalised trade regimes to promote efficiency in trade and investment;
3. Structural reforms to encourage domestic competition;
4. Building of strong institutions and political stability to foster good governance;
5. Emphasis on education, training, and R&D to promote productivity; and
6. Prudent external debt management to ensure adequate resources for sustainable development.

Sadly, on all of these counts South Asia has fared very poorly. Economic management was poor that are provided by a mediocre civil service who are under political pressures. All South Asian countries have a history of longstanding economic restrictions resulting in inefficiencies and appropriation of government granted monopoly rents. It is only in the early 1990s that South Asian began to liberalise with India taking the lead in response to an international balance of payments crisis. These reforms are by no means a return to laissez-faire policies and more work needs to be done in South Asian countries for achieving an outward-oriented industrial and trade regime.

Most importantly, besides market failure there has been a massive and colossal government failure in South Asia. Whether a nation succeeds or fails in its efforts to promote development is closely related to the character and quality of its governance<sup>5</sup>. Good governance promotes, supports and sustains human development, based on expanding human capabilities, choices, opportunities and freedoms (economic, social as well as political), specially for the poorest and the most marginalised members of society.

Hayami (1997) demonstrates, with cross-country comparisons and historical data, that country-specific factors such as governance, institutions and culture play a dominant role in determining the growth path of a country. Countries with similar resource endowments can experience sharply divergent growth pattern simply because of country-specific governance and organisations. Some examples of this phenomenon are India and Pakistan, North Korea and South Korea and Kenya and Tanzania.

South Asia as a region has been plagued by low income growth and relatively

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<sup>5</sup> According to the UNDP the characteristics of good governance are: (1) Participation (2) Rule of Law (3) Transparency (4) Responsiveness (5) Equity (6) Accountability and (7) Strategic Vision.

high population growth leading to “low equilibrium” trap. Lack of proper institutions, organisations and mass participation in the region can severely constrain the utilisation of efficient production techniques and further exacerbate the “low equilibrium” trap.

It is common knowledge that corruption is severely undermining development objectives in South Asian countries by hindering economic growth, reducing efficiency, acting as a disincentive to potential investors and, above all, by diverting critical resources meant for poverty alleviation.

Transparency International has designed a database on corruption in public services in five countries in South Asia<sup>6</sup>. According to Transparency International (2002) "The never-ending saga of high-profile exposés and racy media coverage of graft in recent years offer a disquieting reel of vignettes on the magnitude of corruption in all spheres of life." The level of corruption is given by the annual Corruption Perceptions Index (CPI), published by Transparency International since 1995 and is reported below.

**Table 9 Transparency International Corruption Perceptions Index Scores**

Country	1995	1996	1997	1998	1999	2000	2001	2002
Bangladesh	N/A	2.29	N/A	N/A	N/A	N/A	0.4	1.2
India	2.78	2.63	2.75	2.9	2.9	2.8	2.7	2.7
Pakistan	2.25	1.00	2.53	2.7	2.22	N/A	2.3	2.6
Sri Lanka	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.7

Source: Transparency International (2002) Table 1.

Note: Scores relate to the perception of corruption among business people (both resident local and expatriate), academics and risk analysts, and range between 10 (highly clean) and 0 (highly corrupt).

Transparency International (2002:4) also demonstrate a high degree of correlation between the corruption index of a country and its human development index (HDI) score, i.e., the lower the CPI the lower is the HDI of the country. Further,

<sup>6</sup> It is the first regional survey of its kind in South Asia, measuring the extent, spread and intensity of

Transparency International (2002:5) quotes some studies on the cost of corruption in South Asia and reports,

"To quote some studies on the South Asian experience: If India were to reduce corruption to the level that exists in the Scandinavian countries, investment could be increased by 12 percent and the GDP growth rate by 1.5 percent per annum. Similarly, Bangladesh could increase its GDP growth rate by half a percent if profiteering practices were reduced to the level found in Uruguay. And, if Pakistan were to reduce its level of corruption to be on a par with Singapore, GDP growth rates could increase by two percentage points."

Another reason for non-convergence of per capita output in South Asia can be explained in terms of the endogenous growth theories (EGTs) where growth is an endogenous function of policy incentives and private behaviour. EGTs postulate that individuals can accumulate all factors of production. Investment in human capital augments labour. Thus, physical capital and labour-augmenting capital will grow together in the long-run, preventing diminishing returns to physical capital.

Lastly, Easterly (1998) refers to the vicious circle of a "poverty trap". Easterly (1998:9) writes "...countries in poverty traps will not attract physical or human capital from abroad. The low average human and physical capital lowers the return to new capital. .... Rich countries make their physical capital movements at home or in other rich countries, not in poor countries." This point is true for South Asian countries as shown in Table 10.

**Table 10 Private Capital Flow and Foreign Direct Investment in South Asia**

Country	Gross Private Capital Flows (% of GDP)		Gross Foreign Direct Investment (% of GDP)	
	1990	2000	1990	2000
Bangladesh	0.9	3.6	0.0	0.6
India	0.8	3.0	0.0	0.6
Nepal	3.5	4.8	0.0	0.0
Pakistan	4.2	2.5	0.6	0.5
Sri Lanka	13.1	7.6	0.5	1.1

Source: World Bank (2002) World Development Indicators Table 6.1

Then, Easterly (1998:9) gives the example of movement of human capital by citing the Brain Drain phenomenon: "Skilled surgeons or investment bankers or lawyers flow to countries and cities where there is already a concentration of skilled surgeons or investment bankers or lawyers. Again, this is evidence that there is a productivity spillover from high average skills to the new entrant" Easterly (1998:9). In conclusion Easterly (1998:9) writes, "Countries that start poor tend to stay poor, because the incentives are poor. People respond to incentives. People respond to incentives. People respond to incentives."

## **V Summary and Conclusion**

In this study three concepts of convergence have been identified namely  $\sigma$  convergence,  $\beta$  convergence and conditional  $\beta$  convergence ( $\beta^c$ ). These were tested for seven South Asian countries representing SAARC by using World Bank data from 1960-2000. Our empirical results show the absence of per capita income convergence in South Asia. A clear finding of this study is the rising per capita income dispersion in the region as indicated by  $\sigma$  convergence. We next explored the reasons for income

divergence in South Asia. We concentrated our attention on both economic and non-economic factors in trying to explain the non-convergence. Trade links, which is supposed to be a conduit for transmission of technology and resources, among South Asian countries are very weak. Further more, factors conducive to long-run economic growth were absent in the South Asian economies. This was further compounded by weak governance as these countries have scored very poorly on the governance indicators<sup>7</sup>. South Asian countries have so far failed to break the poor governance cycle and Transparency International Report (2002:5) provides an answer. "A major reason seems to be the weak demand for mobilisation around critical governance themes. Most governance initiatives appear to be externally driven or top-down, with little or no ownership inside the country, specifically among the critical stakeholders – the citizens. This explains to a large extent why there are very few civil society initiatives that link up to the ongoing macro reforms."

Unless strong national economic policies are put in place growth in South Asia is likely to worsen in the future. Easterly (1998:10) catalogues "a list of policies that each by itself goes with an increase of one percentage point in growth". These policy measures are derived from empirical results and are listed below:

- Increase of 1.2 years in average schooling of labour force.
- An increase in secondary enrolment of 40 percentage points
- A reduction of 28 percentage points in the share of central bank credit in total credit
- An increase of 50 percentage points in financial depth (M2/GDP)
- An increase of 1.7 per cent of GDP in public investment in transport and

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<sup>7</sup> These indicators are Polity Score, Press Freedom, Voice & Accountability, Law & Order, Government Effectiveness and Graft Corruption.



communication

- A fall in inflation of 26 percentage points
- A reduction in the government deficit of 4.3 percentage points of GDP
- A fall in the black market premium on the exchange rate of 36 percentage points
- An increase in (exports + imports)/GDP of 40 percentage points
- A fall in government consumption/GDP of 8 percentage points
- An increase in foreign direct investment/GDP of 1.25 percentage points.

South Asian countries need to embrace these policy measures either as a package or to pick the options that are feasible.

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