CAN SOUTH ASIA ADOPT A COMMON CURRENCY?

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" …… development of greater economic stakes in each other (i.e., SAARC economies) ……would pave the way for more ambitious, but entirely achievable, goals such as free trade area and economic union, open borders and common currency for the region."

India's Prime Minister Vajpayee at the 12th SAARC Summit in Islamabad, Jan. 4, 2004.

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Abstract: The paper examines if the seven South Asian countries satisfy the criteria to form an optimal currency area. The empirical part of the paper reveals some positive attributes (such as the existence of positive shocks for major economies like India, Pakistan and Sri Lanka). The paper provides geo-political reasoning for more economic cooperation among the countries, suggesting areas where cooperation could be mutually beneficial to the economies. This paper argues that the benefits of a common currency would accrue from the peace that economic integration would bring between India and Pakistan. The paper also compares this region with Western Europe and Southeast Asia.

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1. INTRODUCTION

Until the recent adoption of the Euro, many economists were highly skeptical that a bloc of countries would agree to give up their sovereign currencies and independent monetary policy instrument. The introduction of the new currency on January 1, 2002 dispelled lingering doubts about the reality of a monetary union. In fact, there is much interest in whether Europe's monetary union could act as a role model for the other regions in the world, such as North America, the Association of South East Asian Nations (ASEAN), or West Africa. The focus of this study is on South Asia, a region that has been neglected by previous research. As Rose (2001) said, "academics should be trying to get policy-makers to raise monetary union to the level of national debate," this paper is my contribution towards that effort for South Asia.

The Asian Crisis of 1997 didn't seem to affect South Asia much, partly as a result of low capital mobility, which insulated these economies from capital outflows. Yet, this insulation from the crisis has come at a very high cost to these countries. Inward-looking policies have stifled the enormous potential for growth in South Asia. Rose (2000) has shown that countries using a common currency trade significantly more (3 times), controlling for other factors. Successful expansion of trade within the region could also advance an understanding of the benefits of export-led growth, and promote further steps toward trade liberalization. The aim of this paper is to see if South Asia could form a monetary union and enjoy the benefits from a single currency.

On December 5, 1985, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka formed the South Asian Association for Regional Cooperation (SAARC). Cooperation was sought in economic, social, scientific and cultural areas. For much of

the time since the formation of SAARC, the benefits of association have not been tapped because of internal and external conflicts within and between member states, rigid and inflexible economic policies, extensive bureaucracy, and rampant corruption. However, the situation is improving and the nations are committed to promoting regional cooperation. They are seeking to reduce political, military and economic tensions, expand trade, take measures to eliminate poverty and protect the environment, and improve cultural links that exist among the South Asian states.[1] The goal to move towards more economic integration and ultimately towards a common currency in South Asia was emphasized by the Prime Minister of India, Mr. Vajpayee, in January 2004. The commitment towards economic integration through free trade agreement has also been evident in the Twelfth SAARC Summit held in Islamabad on January 4-6, 2004.[2] In addition to regional cooperation, some countries are promoting bilateral cooperation to expedite the process. For example, India and Sri Lanka have been engaged in bilateral trade agreements in order to have free trade by 2005. It is hoped that through economic cooperation, the political tensions in the region could be reduced.[3]

Before I proceed with the paper, certain questions beg some discussion: Should the countries proceed with this monetary union in the EU-style? I feel that the union should proceed in the EU-style – encouraging factor mobility and trade integration. Then the following path can be taken to the monetary union (Mundell 1997): First, there should be a commitment to fix the exchange rate with a credible mechanism of adjustment. Second, there should be an establishment of tight monetary arrangements, like those that exist in a currency-board system with an irrevocable commitment to the parity. Third, the

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[1] Source: http://www.saarc.com . For specific reasons for the failure of SAARC to achieve its objectives, refer to Dutta (1999, pp 276).
[2] See http://www.saarc-sec.org/main.php for details.

national currency should be replaced by the common (possibly the partner) currency. Of course, to pursue the EU-style economic integration, South Asia has some way to go. However, as mentioned above, bilateral trade agreements among countries are encouraging. Additionally, trade can be encouraged through fixing the exchange rates credibly. If currencies fluctuate persistently, it could lead to competitive depreciation and exchange dumping, which could hinder the operation of a Single Market. Evidently, as regional trade initiatives grow, there will be an "increasing need to buttress economic integration with monetary integration in other parts of the world, as there has been in Europe," (Eichengreen, 1997, pp 265). Rose (2001) forcibly argues that the benefits of monetary unions and single currency are understated. Rose (2000) finds that a pair of countries in a monetary union seems to have substantially higher bilateral trade, holding a host of other factors constant. Even in a survey on the effect of common currency on international trade, Rose and Stanley (forthcoming) document that most studies find that currency unions raise trade a lot. Hence, no matter what, the move towards a single currency assumes even more significance when countries want more economic integration through trade.

Why do we need a common currency when the same level of integration could also be achieved through policy coordination—like between Canada and the United States or Switzerland and Germany? *The movement to a common currency is a legitimate recognition of political commitment to ensuring regional integration, hence it might be desirable in the SAARC region* (where political incentives have outweighed economic incentives to establish peace and stability which is crucial for growth in that region). Even for Europe, the political economy wisdom dictated that to avoid exchange rate

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[3] History and some other facts about SAARC are provided in Appendix 1.

fluctuations and sustain political support for internal market, the move to a common currency was inevitable (Eichengreen 1997, 324). The same would be true for South Asia. Yet, for South Asia, the goal of the union is not necessarily to become an international currency and be competitive against the dollar and the euro. The common currency can lead to a large increase in real income by boosting trade (Frankel and Rose 2000). The major benefit of this union, however, will accrue in terms of peace that the union can bring, which will enhance growth in the region. This sentiment was echoed by Pakistan's president, Mr. Musharraf, on his visit to India on April 17, 2005, "We want people in my country, Pakistan, and your country, India, to prosper. This can only be done through peace."

This paper seeks to answer the question: "Could the seven countries that comprise SAARC form an optimal currency area (OCA)?" There has been no study that has systematically analyzed this possibility for this region. In light of the literature on OCA, this paper looks at the trade relationships, economic structure, labor mobility and the shocks affecting this area in order to examine the feasibility of a common currency. Since economic criteria are not the only determinants in the decision to move to a single currency, the paper also examines some geo-political factors that are important in this process. In addition, this paper also seeks to find similarities and differences with the European Union and ASEAN countries.

Since Mundell's (1961) and McKinnon's (1963) seminal work on OCA, researchers have focused on four inter-relationships between the countries that would impinge on the benefits of adopting a common currency, namely:

1. Extent of trade: If potential members of a union trade a lot with each other, monetary union would reduce transaction costs.

2. Nature of disturbances: If the countries experience similar shocks, the cost of giving up monetary policy independence would decrease.[4]

3. Degree of labor mobility: High labor mobility across borders can be a useful mechanism for adjusting to asymmetric shocks that lead to high unemployment in a subset of the members of the union.

4. Fiscal transfers: If region-specific shocks prevail, a federal fiscal system would provide regional insurance (in the form of federally funded unemployment insurance benefits), thereby attenuating the impact of regional shocks on interregional income differentials.

Empirical studies

Some empirical studies suggest that a monetary union confers substantial benefits to trade. Rose (2000), in a cross-sectional study, shows that two countries that share the same currency trade three times as much as they would with different currencies. Glick and Rose (2001), in a time-series cross-sectional study, find that bilateral trade rises/falls by about 100% as a pair of countries forms/dissolves a currency union, *ceteris paribus*. Frankel and Rose (2000) use economic and geographic data to show that belonging to a currency union more than triples trade with each of the members of the zone. They also find that every 1% increase in trade (relative to GDP) raises income per capita by roughly 1/3rd of a percent over twenty years. Hence, their results support the hypothesis that the beneficial effects of currency unions on economic performance come through the promotion of trade, rather than through a commitment to non-inflationary monetary policy, or other macroeconomic influence. Rose and Engel (2002) find that members of

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[4] This assumes same preferences in the two countries. Corden (1972) shows that differences in preferences across countries could obstruct monetary union. Bayoumi and Eichengreen (1994) enlist some caveats about implications of loss of policymaking in case of formation of a monetary union.

international currency unions tend to experience more trade and less volatile exchange rates.

The empirical literature also investigates the relationship between business cycles synchronization and currency unions. Rose and Engel (2002) also find that business cycles are more tightly synchronized for members of a currency union than between countries with sovereign currencies, but not as much as regions of a single country. Being a member of a common currency area increases international business cycle correlation by perhaps 0.1, an economically significant amount. Frankel and Rose (1996, 1997) argue that international trade patterns and international business cycle correlations are endogenous. Using 30 years of data for 20 industrialized countries, they find that countries with closer trade links tend to have more tightly correlated business cycles. It follows that countries are more likely to satisfy the criteria for entry into a currency union after taking steps toward economic integration than before (Lucas critique).[5] On the other side of the debate are Paul Krugman and Martin Feldstein, who argue that economic integration would make business cycles more asynchronized as the economies would become more and more specialized. Rose and Engel (2002) do find that members of common currency areas tend to be more specialized.

Using the criteria set out by this literature, this paper looks at the possibility of an OCA for the SAARC region. The rest of the paper is organized as follows. Section 2 investigates the basic statistics of the SAARC countries. Section 3 describes the empirical

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[5] Expectations are likely to be important to many aggregate variables, and changes in policy are likely to affect those expectations. As a result, shifts in policy can change aggregate relationships. In short, if policymakers attempt to take advantage of statistical relationships, effects operating through expectations may cause relationships to break down. This is the famous Lucas critique (Romer, 2001, pp 275). In the case of currency unions, countries are more likely to increase trade *after* the adoption of common currency rather than *before,* since the adoption of common currency would reduce the exchange rate risk. This

methodology. Section 4 discusses the potential of a currency union in case of SAARC. Section 5 concludes.

2. ECONOMIC STRUCTURE OF SAARC NATIONS

A similar level of economic development is crucial among potential members of a currency area in order to facilitate economic integration. A similar average level of education, skill and productivity of the work force would help moderate the flow of labor across borders, which could otherwise put social and fiscal strains on the immigrant country.[6] Entry into a monetary union leaves fiscal policy as the only macroeconomic tool for stabilization purposes. Therefore, fiscal policy should not be unduly strained by differences in social and economic structures. For example, the SAARC countries exhibit a similar population age structure (Table 1). The demographic statistics point out that these countries are not likely to face an aging problem anytime soon, which could otherwise put pressure on fiscal resources and threaten the existence of the union. If countries are at a similar level of development, there would be lower pressure to transfer funds from richer to poorer nations.

The structure of production is reasonably similar across the SAARC countries. The industrial sector constitutes roughly a fourth of GDP in all countries, and manufacturing sector comprises about 10-15% of GDP for all, except Maldives, where tourism assumes importance. A similarity of economic structure may make them vulnerable to similar shocks, which could require a similar policy response. The Herfindahl index (Table 5) shows that most of the countries are specialized. Since this

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caveat should be kept in mind. A mere look at historical data may not be the best guide, but still it provides a rough idea as to the suitability of a country for an OCA.

specialization is in production of similar goods for exports (Table 6), the case for a common currency is strengthened on the grounds of similar shocks.[7] All the SAARC countries are fairly open to trade, but *further liberalization* and *intraregional trade* may be needed in order to gain the benefits of low transaction costs and elimination of exchange rate risk that accrue from using a common currency.

Solid macroeconomic policies and performances are also required for countries in a potential monetary union in order to prevent a poor performer from imposing externalities on the union. Most of the members of SAARC currently have average inflation rates in single digits, low budget and current account deficits. While external debt varies from 20% (India) to 55% (Sri Lanka) of GDP, it appears sustainable for all countries since the share of short-term debt is small and the level of foreign exchange comfortable for most of the countries. A burgeoning external debt may pose a significant cost to the union by increasing sovereign default risk and widening interest rate spreads.

COMPARING SAARC WITH OTHER GEOGRAPHIC REGIONS

Table 2 shows the mean and standard deviation of growth and inflation.[8] The table illustrates the high rates of growth achieved in East Asia and the high levels of inflation in Latin America. The standard deviations suggest significant regional

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[6] While the movement between high and low skilled workers could be complementary, one must recognize that economic strains could increase if immigration is in the same skilled category.

[7] Thanks are due to Richard Hooley, who brought out the fact that because of production of similar goods, they may not increase trade with each other as much. This argument assumes that much of the trade is inter-industry. Even if countries produce similar goods, there exists a huge potential for intra-industry trade. In addition, there is an immense amount of illegal trade in other commodities that takes place among these countries (refer Taneja 2001), which can be made legal once they recognize an economic union as the final goal—of which free trade zone and customs union is just the beginning. In addition, the formation of a currency union would bring peace and stability in the region, which is also crucial for growth.

[8] Since these growth rates are changes in the logarithm of output and GDP deflator, a value of 0.01 represents a change of roughly 1%.

differences, with Europe displaying the most stable growth and inflation rates.[9] However, in this regional context, SAARC region has the second highest growth rate (after East Asia) and growth stability (after Western Europe). This region also scores the same on inflation rate with East Asia. Why this might be important? Stable growth and low inflation encourage investment and savings, attract FDI and facilitate macroeconomic policy-making.

While stability of growth and inflation is important, a positive correlation of growth and inflation for the SAARC region (Table 3) would suggest that the countries may be cyclically synchronized. Bayoumi and Eichengreen (1994) find some country groups with positive correlation for output but not inflation in case of Western Europe, and an opposite grouping for East Asia. Latin American countries depict a positive correlation for output with the United States and a negative correlation for inflation. Canada and the United States exhibit positive correlation for both output and inflation. According to these simple correlations, the SAARC economies display many positive correlations in output (52%), CPI inflation (95%) and GDP deflator inflation (71%).

In addition to these simple correlations of output and prices, we turn to an investigation of the degree of correlation in underlying supply and demand disturbances. The following section describes the empirical methodology used for that analysis.

3. EMPIRICAL METHODOLOGY

In order to examine the nature of the shocks affecting the SAARC countries, we employ the procedure developed by Blanchard and Quah (1989) and extended by

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[9] While the sample for all regions was 1960-1990, the sample for SAARC region mainly covers the period from 1977-1999.

Bayoumi (1992) to identify demand and supply shocks affecting real GNP. In Blanchard-Quah's model, demand side shocks have no long run effect on output, due to the natural rate hypothesis, while productivity shocks have a permanent effect on output. Since there is no unique way to decompose the series in a univariate framework, Blanchard and Quah use output and unemployment in their VAR to decompose real GNP. Bayoumi (1992) develops a similar model but uses prices instead of unemployment. He argues that since unemployment would be expected to move in the same way in response to both demand and supply shocks, the implied overidentifying restrictions would have somewhat less power than if prices are used.

The basic framework is as follows[10]. Suppose the true model can be represented by an infinite moving average of a (vector) of variables X_t and an equal number of shocks ε_t (where L is the lag operator and A represents a matrix of impulse response functions of the shocks to the elements of X).

$$(1) \qquad X_t = A_0 \varepsilon_t + A_1 \varepsilon_{t-1} + A_2 \varepsilon_{t-2} + \dots = \sum_{i=0}^{\infty} L^i A_i \varepsilon_t$$

Bayoumi (1992) uses output and prices in estimating supply and demand shocks. The framework implies that while supply shocks have permanent effects on the level of output, demand shocks have only temporary effects (both have permanent effects on the level of prices). Let X_t consist of a change in real output and a change in prices. Let ε_t represent the two shocks. The model can be written as:

$$(2) \qquad \begin{bmatrix} \Delta y_t \\ \Delta p_t \end{bmatrix} = \sum_{i=0}^{\infty} L^i \begin{bmatrix} a_{11i} & a_{12i} \\ a_{21i} & a_{22i} \end{bmatrix} \begin{bmatrix} \varepsilon_{st} \\ \varepsilon_{dt} \end{bmatrix}$$

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[10] See Blanchard and Quah (1989), Bayoumi (1992) and Enders (1995) for details on this framework.

where ε_{st} and ε_{dt} are independent supply and demand shocks. In theory, only supply shocks affect real output in the long run, while demand shocks have only a temporary effect. Since real output is written in first-difference form, the cumulative effect of demand shocks on the change in real output must be zero. This puts the following restriction on the model:

(3) $\quad \displaystyle\sum_{i=0}^{\infty} a_{12i} = 0$

Since the elements of X are covariance stationary (represented by the infinite moving average process in 1), they can be represented by an autoregressive process by inverting the MA operator. Hence, this model can be estimated using a vector auto regression (VAR), where all the variables are potentially endogenous and hence are regressed on their lags. Let B represent the estimated coefficients, the VAR can be written as:

(4)
$$X_t = B_1 X_{t-1} + B_2 X_{t-2} + \ldots + B_n X_{t-n} + e_t = [I - B(L)]^{-1} e_t$$
$$= [I + B(L) + B(L)^2 + \ldots]e_t = e_t + D_1 e_{t-1} + D_2 e_{t-2} + \ldots$$

where e_t represents the residuals from the equations in the VAR.

In order to transform equation (4) into the model defined by (2) and (3), we need to transform the residuals from VAR (e_t) into supply and demand (ε_t). Writing $e_t = C\varepsilon_t$, in this two by two case, we require four restrictions to define the four elements of the matrix C. Two restrictions come from normalization of the variance of supply and demand shocks. Another one comes from orthogonality of the two structural shocks.

The final restriction comes from the fact that demand shocks have only temporary effects on real output (3). In terms of the VAR:

$$(5) \qquad \sum \begin{bmatrix} d_{11i} & d_{12i} \\ d_{21i} & d_{22i} \end{bmatrix} \begin{bmatrix} c_{11} & c_{12} \\ c_{21} & c_{22} \end{bmatrix} = \begin{bmatrix} . & 0 \\ . & . \end{bmatrix}$$

This restriction allows the matrix C to be uniquely defined and the supply and demand shocks to be identified.

This econometric methodology is used to estimate supply and demand shocks. Then, a pair-wise correlation matrix is computed for each type of shock to examine their symmetry across countries, which is essential in determining the readiness of a country to enter the union. A positive correlation of supply shocks signals that countries would require a synchronous policy response, which is crucial as the countries entering the union have to accept a common monetary policy. Highly related demand shocks may be less important, as they may stem from divergent monetary policies, which would no longer occur after monetary union.

4: DO SAARC COUNTRIES HAVE THE NECESSARY CONDITIONS TO FORM AN OPTIMAL CURRENCY AREA?

CRITERION 1: INTRA-REGIONAL TRADE

The literature on OCA emphasizes trade as the main channel through which benefits from a common currency will be enjoyed. Hence, if countries trade a lot with each other, they are likely to benefit from low transaction costs and elimination of exchange rate risks. Before moving towards a full monetary union, the member countries may want to form a *custom union*. It is well-known that custom union could lead to *trade creation* (when there is a shift in the geographic location of production from higher-cost to lower-cost member) or *trade diversion* (when there is a shift in the locus of production of formerly imported goods from a lower-cost nonmember state to a higher-cost member

nation). Since a currency union just reduces costs of trade within the region – as such it should be welfare-enhancing as the old patterns of trade are still available to the countries. Furthermore, econometric evidence suggests that countries in currency unions trade more with everyone, not just their union partners.[11] Hence, the move to a currency union is more likely to lead to trade-creation.

Table 4a depicts the openness of the SAARC economies. All the countries show a big increase in the openness index between 1975 and 2003. Currently, the index varies between 20% (India) and 65% (Sri Lanka and Bhutan). After experiencing a balance of payments crisis in 1991, India embarked on a trade liberalization drive, but remains the most closed economy in the SAARC region. But India's openness index is comparable to Germany's. One must recognize that India has a huge domestic market, hence trade forms a substantially smaller percentage of GDP, especially when compared with East Asian economies, that are small and essentially require trade for growth. The rest of the countries are fairly open to trade, with Sri Lanka topping the chart.

Intra-regional trade in South Asia (Table 4b) shows significant variation, with India and Pakistan trading the least with South Asia (3% in 2000) and Nepal the most (35% in 2000). Such intra-regional trade figures are much higher for the euro area and ASEAN. However, these figures might not be very representative of the total *actual* trade that takes place among these countries because of very high *illegal trade* among SAARC countries. For example, the magnitude of formal and informal trade between Bangladesh and India is roughly the same, while informal trade forms almost a third of the value of formal trade between India and Sri Lanka (Taneja (2001, 2002)). Estimates on illegal

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[11] From the discussion in a conference; available via the internet:
http://www.rba.gov.au/PublicationsAndResearch/Conferences/2001/wyplosz_discussion.pdf

trade between India and Pakistan vary from $100 million to $1 billion per year. The proportion of intra-SAARC trade (as a percentage of total SAARC trade with the world) increased from 4.46% to 6.48% for the year 1999 once unofficial trade was accounted for (South Asia Development and Cooperation Report 2001/2, 2002).

Still, with the present figures, Bhutan, Maldives and Nepal trade a lot within the SAARC region. In fact, the share of trade with India for Bhutan and Nepal is about 75% and 40%, respectively. This is not surprising, given the free trade treaty that has existed between India and Bhutan since 1949 and a nearly free trade treaty between India and Nepal since 1996[12]. With SAFTA and SAPTA talks progressing, we are likely to see an increase in *official* trade among these countries.[13] Hassan (2001) suggests that more liberalization is required in order to reap benefits from an economic bloc. India has shown its keenness on reducing non-tariff barriers with the other SAARC countries. Hence, on August 1, 1998, India unilaterally removed quantitative restrictions on imports from SAARC countries, viz, Bangladesh, Bhutan Nepal, and Maldives, Sri Lanka or Pakistan subject to the condition that they comply with the rules of origin principles as stated in the SAARC agreement (Taneja 2001).

In addition, as noted in the literature described earlier, trade is endogenous. Once a common currency has been adopted, more trade and greater synchronization of business cycles can occur than before entry. However, unlike Frankel and Rose (2000), who argue that gains come only through trade, we feel that the process of formation of an economic union would no doubt enhance trade, but will definitely ease political tensions that exist between India and Pakistan.

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[12] Except alcohol, tobacco and cosmetics.
[13] See South Asia Development and Cooperation Report 2001/2, 2002, for approaches adopted by the South Asian countries to increase economic cooperation through trade.

CRITERION 2: NATURE OF DISTURBANCES AFFECTING SAARC

Specialization: A highly specialized production and export structure could suggest that the country could be vulnerable to shocks arising from input costs and demand in its area of specialization. We compute the Herfindahl index, a measure of specialization for each country. This index is the sum of squared shares of the individual goods, defined as:

$$H_{it} = \sum_j \left(\frac{x_{ijt}}{X_{it}} \right)^2$$

where x_{ijt} denotes the exports for country i of SITC subgroup j in year t, X_{it} denotes total exports for i in year t. H is bounded by $(0,1]$; a high value of H indicates that the country is specialized in the production of a few goods.

We calculate this index for 5 out of 7 SAARC economies for which data was available and compare it with the mean computed by Rose and Engel (2002) for currency union and non-currency union members. The average of Herfindahl indices for SAARC countries is equal to the average for members of currency unions (Table 5). Indices for India and Sri Lanka are slightly lower than those of other countries, implying that they are somewhat more diversified. It is quite evident from Table 5 that most of the SAARC countries are specialized in the production of few goods. If specialization is in the same goods, this in fact could be taken as an argument to use a common currency since they will be affected by similar shocks. Table 6 shows that textiles, garments, or cotton fabrics are the major exports of most of the SAARC economies. Hence, these countries are more

likely to experience symmetric external shocks.[14] While production of similar goods could prohibit inter-industry trade, it will likely encourage intra-industry trade.[15] For example, Cerra, et al (2005) show that while India and China both have comparative advantage in producing textiles and clothing, India is relatively better at producing textiles and China in clothing. Hence, the two economies could benefit if China imports textile material from India in order to produce clothing for export.

Correlation of supply and demand shocks: Using the methodology outlined in the previous section, we estimate the structural VAR model on annual data for all the seven countries (see appendix 2 for data sources).[16] Two lags are chosen for the VAR in order to capture the business cycles. The estimated results for supply and demand shocks are presented in tables 7 and 8.[17]

Tables 7a, 7b and 7c report the correlation of supply and demand shocks among the SAARC countries. While the estimated correlation coefficients of supply shocks ranged between –0.39 and 0.68 for Western Europe, -0.16 and 0.71 for East Asia, and –0.59 and 0.72 for the Americas (Bayoumi and Eichengreen (1994)), the correlation coefficients for South Asia range between –0.41 and 0.29 (for entire sample) and between -0.68 and 0.53 (from 1995-2003). For the entire sample, about 1/3rd correlations are positive, but this number increases to about 50% for the more recent time period (1995-

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[14] See Majumdar and Chakraborty (2001) for analysis of production structures of the SAARC countries. They find strong similarity of production structures between India and Pakistan (and limited one for Bangladesh).

[15] The geo-political section discusses particular goods in which intra-regional trade can be encouraged.

[16] Annual data was used in order to make this study comparable to Bayoumi and Eichengreen (1994). Standard unit root tests (not presented in the paper) indicate that the series are non-stationary in levels, but stationary in first differences for all series, except for the first difference of CPI for Maldives and Pakistan. Since research indicates that unit root tests of economic variables suffer from lack of power, when a series is stationary, but highly correlated, rejection of the unit root hypothesis requires a considerably longer sample period that is typically available—which seems to be the case here.

[17] Since our main interest in this empirical exercise is to extract the supply and demand shocks, we exclude the analysis of impulse response functions and variance decompositions to conserve space.

2003). In fact, Sri Lanka and Pakistan seem to display positive and stronger correlations with India in the recent times.

The correlation coefficients for demand shocks ranged from -0.21 to 0.65 for Western Europe, -0.39 to 0.7 for East Asia and –0.45 to 0.7 for the Americas (Bayoumi and Eichengreen (1994)), the range for South Asia is –0.3 to 0.57. The table shows that 81% of the correlations are positive.

Size of disturbances and speed of adjustment: The typical size of disturbances is another important economic characteristic since larger disturbances can have very disruptive effects, and may require policy independence (e.g., monetary policy) to offset them. Similarly, if the speed with which the economies adjust to disturbances is slow, then the cost of fixing the exchange rate and losing policy autonomy increases.

In order to assess the size of disturbances, we use the long-run effect on output from the impulse response functions for the size of supply shocks and the sum of the first year's impact on output and prices for the demand shocks. For the speed of adjustment, we estimate the response after two years as a share of the long run effect (following Bayoumi and Eichengreen (1994)).

Table 8 displays the size and the speed of adjustment for supply and demand disturbances for different geographic regions.[18] The SAARC economies experience the smallest supply disturbances compared to the other regions. The demand disturbance is larger than Western Europe's but smaller than East Asia and the Americas. The speed of adjustment is fastest for demand disturbances and ranks second for supply disturbances after East Asia. Almost all the adjustment to the disturbances is completed within two

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[18] The estimates for Western Europe, East Asia and the Americas are taken from table 7 of Bayoumi and Eichengreen (1994) for comparison.

years. Within the SAARC region, adjustment to demand disturbances is fastest in Bhutan and slowest in Maldives (where only 50% of the adjustment is completed within the first two years). However, Maldives has the fastest adjustment to supply disturbances, while Pakistan is the slowest in responding to supply shocks (only 61% of the adjustment is completed within the first two years).

CRITERION 3: LABOR MOBILITY

Labor mobility has been emphasized in the optimum currency area literature as it helps the members of a monetary union to adjust to asymmetric shocks by allowing labor to move from areas of high unemployment to low unemployment. Labor mobility varies across the SAARC region, but there is, unfortunately, scant official data on labor mobility. While labor is perfectly mobile between India and Nepal, there is very little mobility between India and Pakistan. Bangladesh has a very porous border with India that results in a substantial, but mostly illegal, flow of labor from Bangladesh to India. Legal hurdles raised to check the immigration has failed to curb the flow of people, who for centuries have been moving with timber, cloth, cattle and so on (Banerjee, et al 1999). At present, we can't expect perfect labor mobility, as it is obvious from the experience of EU—where the mobility of labor at the beginning was less than one third of what it is today. Similar to the EU, labor mobility may initially be hampered by cultural and linguistic differences. Unlike the EU, where the fences created by wars were already mended before progressing towards a common currency, the continuing conflict between India and Pakistan poses a deeper problem for South Asia. Nevertheless, the governments of all these countries need to push for more official mobility of labor.

One way to build trust and harmony between the two nuclear-neighbors is to allow nationals to travel across the borders. There had been numerous attempts by the Vajpayee government to encourage travel between India and Pakistan by land (bus and train) and air. The bus service was launched in 1999 when Prime Minister Vajpayee traveled to Lahore for talks with Pakistan Prime Minister Nawaz Sharif. More recently, visit visas have been granted to members from divided families who live on either side of the border. As the dialogue between the two countries progresses (with a very recent visit by President Musharraf to India), it will lead to discussions on easing restrictions on tourist visas. Unlike the failed summit in 2001, the recent talks between the two countries are expected to soften the talk on Kashmir and encourage trade and travel. The most significant of those steps came at the beginning of April 2005, when bus passengers from India and Pakistan crossed the front line dividing Kashmir for the first time since partition in 1947.[19] Such interactions between the two nations augur well for the entire region.

CRITERION 4: FISCAL TRANSFERS

While no official fiscal transfer mechanism exists at present (except in the form of official aid), this issue can be addressed when formal negotiations for adoption of common currency start. However, Eichengreen (1997) presents counter-arguments to fiscal federalism—it may discourage factor mobility and may encourage national labor unions to demand higher wages as the burden of unemployment benefits falls on the entire union (and this may create more socially inefficient unemployment). Euro area

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[19] LA Times, April 17, 2005.

collects a union-wide VAT, which is distributed according to some agreed upon rules. SAARC countries could build a federal budget on the line of the EU.

CRITERION 5: GEO-POLITICAL FACTORS[20]

While the economic criteria discussed above are essential for determining the suitability of South Asia for a monetary union, the geo-political factors play an equally important role in this process. Two developments in the international environment make the prospects of South Asian exports to the new markets less promising. First, the weak growth in the world economy since 2000 has adversely affected the export performance of the region. Second, with the formation of regional economic blocs and growing protectionism in both the developed and developing regions, the South Asian countries may find it difficult to gain access to these markets. Given these developments, it will be beneficial for the SAARC countries to focus on intra-regional cooperation.

Dash (1996) recognizes four reasons for low intra-regional investment and trade among the South Asian economies – namely, production of similar products and hence being competitors, high tariff and non-tariff barriers, infrastructural bottlenecks and lack of political willingness.[21] However, there are compelling economic reasons to suggest that it is in the interest of all the South Asian countries to promote intra-regional trade and economic cooperation. Direct trade in products like steel and aluminum, textile machinery, chemical products, and dry fruits currently being diverted through third countries can benefit both India and Pakistan quite substantially in terms of price, quality,

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[20] This section is taken from Saxena and Baig (2004).
[21] The barriers to trade and political unwillingness seem to be the sticking points. However, the discussion in this section shows how enhancing trade would be beneficial to all the countries. Of course, the paper has consistently argued that the major benefit from this union will come from peace between India and Pakistan. The paper has also offered instances of recent political engagement between the two countries.

and time. The region can expand trade in such products as tea and coffee, cotton and textiles, natural rubber, light engineering goods, iron and steel, medical equipment, pharmaceuticals, and agro-chemicals.

The energy problems in the region can be solved through cooperation. For example, Dash (1996) argues that the water from the Himalayan Rivers flowing through Bangladesh, Bhutan, India, Nepal and Pakistan can be harnessed for flood prevention and inland navigation system. India assisted Bhutan in constructing the Chukha hydroelectric project, which has the potential to benefit Bangladesh, Nepal, and Pakistan.

There are significant complementarities in trade among these countries. For example, Dash (1996) recognizes that Bangladesh can export such items as tea, newsprint, jute goods, and leather to Pakistan and in turn, import such items as textiles, cement, light engineering goods, machinery, and railway rolling stock. He identifies that India can provide security and meet Bangladesh's need for manufactured goods, such as steel, chemicals, light engineering goods, capital goods, coal and limestone. For a balance in trade deficit, India can import products such as urea, sponge iron, semi-processed leather, and newsprint from Bangladesh. The need to improve economic ties for Bangladesh with India and other countries in South Asia has increased in recent years, given the drying up of official development aid (ODA) to the South Asia from international agencies. In fact, India has been showing considerable interest in expanding economic cooperation with Bangladesh.

Nepal has always maintained very cordial relations with her neighbors, which won her the unanimous support for setting up SAARC's permanent secretariat in Kathmandu. However, she depends on India for aid, some critical imports like oil, cement, and coal and for employing her labor. Like Bangladesh, Nepal is facing reduced

official foreign aid. Hence, she wants to develop more integration with the other South Asian economies, while trying to decrease her economic dependence on India.

Sri Lanka is an island and the only SAARC nation that does not have a contiguous border with India. Her anxiety about more economic cooperation reflects the overwhelming economic and political power that India exerts in the region. However, Sri Lanka can gain by diverting her trade in cement and ship building with South Korea to India and Pakistan. Adverse terms of trade, protectionism from the West and political instability from the civil war have led Sri Lanka to build local ties. Hence, since 1992, Sri Lanka has consistently advocated improving intraregional trade through the framework of South Asian Preferential Trade Agreement (SAPTA). The bilateral free trade agreement (FTA) with India is a welcoming step in this direction.

Among the SAARC countries, India has the broad industrial base and expertise, technology, and capital in certain sectors to invest and set up joint ventures in the region. Indian companies have emerged as major sources of investment in Sri Lanka and Nepal, the countries having bilateral free trade arrangements with India.

Like all the other SAARC nations and developing countries, Pakistan also has limited access to the markets in the developed world and hence Pakistan has taken initiatives to form Economic Cooperation Organization (ECO) to promote its exports and improve intra-regional trade with Central Asia. But given the competition from developed countries, it will be difficult for Pakistan to capture these markets. So, Pakistan has a lot to gain by accessing the South Asian markets, where the potential for trade is immense.

Of all the SAARC economies, the two smallest countries, Bhutan and Maldives, have always supported the growth of regional cooperation in South Asia.

From the above discussion, it is evident that there is a great deal of potential in the region for developing trade and economic cooperation. Increasing openness of the economies with the removal of tariff and non-tariff barriers and elimination of exchange rate risk will enhance trade and facilitate monetary cooperation in the region.

COMPARISON OF SAARC WITH EURO AREA AND ASEAN

ASEAN does not contain the same type of focal point that Germany, as the largest economy in Europe with an established track record of stable macroeconomic policies, provided in Europe (Bayoumi and Mauro 1999). India could provide that "focal" point in SAARC, as it is the largest economy (both in terms of population and income).[22] All countries trade significantly with India (formally or informally)[23] and labor is mobile across most of the Indian borders. However, India has not provided a coordination role in monetary policy as Bundesbank had done in Europe. Prior to monetary union, many of the European countries pegged their currencies to the Deutsche mark. Bhutan and Nepal have pegged their currencies to the Indian Rupee since the 1950s, and this has encouraged them to trade significantly with India. Formal coordination after monetary union would require setting up joint institutions, including a common central bank, agreeing on rules for sharing seignorage among member countries, and jointly adopting procedures for lender-of-last-resort operation. Khan (1999) also argues that SAARC

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[22] Thanks are due to a referee who asked if there ever has been a currency area as imbalanced in size of the players as would be South Asia. Indeed, in 1974, a formal monetary agreement was signed between South Africa, Swaziland and Lesotho, known as the Rand Monetary Area agreement, and the rand has remained legal tender in all these countries. South Africa wielded as much economic and political power as India does in the case of South Asia. The rand area continued as such until 1992, when Namibia decided to join the union. Other examples of such unions can be found in Glick and Rose (2001).

[23] See Taneja (2001).

needs to establish regional institutions, such as the South Asian Development Bank and a Council of Economic Advisors.

At the eve of adoption of the Euro, capital mobility was very high. ASEAN already has high capital mobility. In contrast, SAARC economies are very closed and have a long way to go to fulfill the "one-market" ideology that EU adopted. However, such liberalization cannot be ruled out. Once trade becomes free across national borders—there are bilateral agreements between India and other SAARC countries, with the exception of Pakistan—steps could be undertaken for liberalizing capital flows.

Western Europe is less diverse than ASEAN in terms of levels of economic development and monetary systems. Economic similarity may make adoption of policies to support economic integration easier, such as the integration of capital and labor markets and transfers to the EU's poorer members. While the migration of workers from low-wage to high-wage countries within the EU, and any ensuing social strains, have been relatively limited (Bayoumi and Mauro (1999)), the integration of Eastern Europe with the EU has already been more complicated. In case of SAARC, while countries are at low levels of development, they are on a path of similar growth and development. With concerted effort towards coordination, these countries could achieve some agreed upon convergence criteria reasonably well.

While adoption of a common currency leads to economic integration, the same level of integration could also be achieved through policy coordination—like between Canada and the United States or Switzerland and Germany. However, *movement to a common currency is a political commitment to ensuring regional integration, hence it might be desirable in the SAARC region* (where political incentives have outweighed

economic incentives to establish peace and stability which is crucial for growth in that region).

5: CONCLUSIONS

This paper is a modest attempt to answer a policy question: Is SAARC an optimal currency area? While the evidence is mixed as one would expect since no formal coordination process has taken place, the paper shows that there can be substantial gains from monetary union in the form of higher formal trade and peace and stability. The analysis in the paper doesn't suggest that all the seven countries are ready to adopt a common currency. Rather, the paper shows the existence of some positive aspects (like positive shocks across major economies) and the prospects of increasing trade, which would be very beneficial for the region, as access to the world markets may get limited in the future.

While intra-regional trade is small for most countries, except Bhutan, Nepal and Maldives, it has increased for Bangladesh and Sri Lanka in the last decade and trade is likely to increase further once countries move to free trade agreements (as preferential and free trade agreements have already been in place between India and Sri Lanka and India and Bangladesh).[24] Moreover, Frankel and Rose (1996, 1997) show trade is an endogenous variable, and countries are more likely to satisfy the OCA criteria *ex-post*, than *ex-ante*. The elimination of exchange rate risks and volatility would decrease transaction costs and uncertainty, which is likely to increase trade among these countries.

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[24] Trade between India and Bhutan and India and Nepal is free. See South Asia Development and Cooperation Report 2001/2 (2002) for the potential benefits from trade between India and Pakistan and measures undertaken by South Asian nations to encourage trade links.

In fact, the paper spells out the commodities in which bilateral trade would be mutually beneficial.

The Herfindahl index indicates that most economies are specialized in their production. Since most of these economies specialize in the production of textiles, garments and cotton fabrics, it suggests that these economies may experience similar shocks and may need similar policy response to offset them. Hence, the loss of policy autonomy might be minimal. Instead of engaging in inter-industry trade, these countries are more likely to develop intra-industry trade.

The supply and demand shocks estimated through structural VAR suggest that about 50% of the supply shocks (including India, Pakistan and Sri Lanka) and 80% of the demand shocks are positive. The size of both kinds of shocks is small, indicating that the shocks may not have very disruptive effects. The speed of adjustment to both kinds of shocks is very fast and most of the adjustment takes place within two years. Hence, the loss of policy autonomy would impose a low cost in the SAARC region if these countries choose to adopt a common currency.

While labor mobility varies across borders, India already receives a large number of immigrants from neighboring countries (mainly illegal migrants). However, recently there has been a political move to encourage mobility of tourists between India and Pakistan. This will likely build trust and harmony between the two neighbors, which bodes well for the entire region. The issue of fiscal transfers is one that needs to be addressed once negotiations for common currency begin.

Regardless of how many criteria for an OCA the SAARC region satisfies, the "Lucas Critique" emphasizes that once the regime changes, the parameters estimated over the historical data may provide a poor guide for future estimates. Rose and Engel (2002)

find that members of international currency unions tend to experience more trade, less volatile exchange rates and more synchronized business cycles than do countries with their own currencies. Since their sample consists mainly of small and/or poor countries, fitting the description for most SAARC economies, their results provide optimism about the gains from a common currency area in the SAARC region.

The success of the Euro area and the EU, talks of Latin America to join NAFTA to gain access to North American markets, and strengthening of trading regimes through APEC in East Asia have provided impetus to more regional cooperation in South Asia.

We would like to emphasize that in addition to enhancing formal trade, the SAARC region is likely to gain more from greater macroeconomic stability that a currency union is likely to bring. Stability would encourage savings, investment and foreign direct investment. All these are required to raise the standard of living of over a billion people in that part of the world.

Lastly, we believe that, as in Europe, there is a strong political advantage for the economic integration of these countries. The constant disruptive battles between India and Pakistan (both of which are nuclear powers) are a source of instability for the region and fighting terrorism has been an unproductive use of resources for India. Khan (1999) argues that the establishment of the SAARC is not a new concept, but is an effort to restore the economic union, which had functioned on the India-Pakistan subcontinent before independence in 1947. Since the partition of India into India and Pakistan, the politics in that region has created a constant climate of tension and mistrust in South Asia, which is impeding growth in the region. Trade can be used to enhance political reconciliation between the two nations. History has shown how Sino-American trade relations have been used to enhance mutual confidence between two politically hostile

nations (South Asia Development and Cooperation Report 2001/2 (2002)). Khan (1999) argues that "it is widely believed that SAARC will eventually become a vehicle of confidence building and economic development in South Asia."[25]

With cooperation already in place and progressing in terms of trade, social issues, regional investment promotion, WTO issues, tourism, tea council, steel front, promotion of internet, finance and network of SAARC researchers, we can foresee the benefits of greater economic integration through coordination of macroeconomic policies. Two reports (Tripartite SAARC Expert Group set up by the Committee on Economic Cooperation in 1997 and the Report of the SAARC Group of Eminent Persons established by the 9th SAARC Summit in Male in 1997) have recommended the gradual formation of a South Asian Economic Union by 2020. The Association should establish a Free Trade Area by 2008-10, a South Asian Custom Union by 2015 and a South Asian Economic Union by 2020.

Once these countries can give up their political motives and start to think of themselves as a part of a prestigious economic union, it could help bring peace and stability. Such an environment is crucial and would be conducive to growth in that region. Needless to say, the improvement in the welfare of a billion plus population in that region would be tremendous!

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[25] Interested readers are referred to Khan (1999) for a review on how specifically countries can gain from economic integration.

Appendix 1: Origin and History of SAARC; Institutional setup and Economic Cooperation[26]

Origin and History:

The South Asian Association for Regional Cooperation (SAARC) comprises seven countries of South Asia – Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The idea of regional cooperation in South Asia was first rooted around November 1980. After consultations, the foreign secretaries of the seven countries met for the first time in Colombo in April 1981. This was followed by a meeting of the Committee of the Whole, which identified five broad areas for regional cooperation.

The foreign ministers of South Asia, at their first meeting in New Delhi in August 1983, adopted the Declaration on South Asian Regional Cooperation (SARC) and formally launched the Integrated Program of Action (IPA) initially in five agreed areas of cooperation—agriculture, rural development, telecommunications, meteorology, and, health and population activities.

The heads of state or government at their first SAARC Summit held in Dhaka on 7th and 8th December 1985 adopted the Charter formally establishing the South Asian Association for Regional Cooperation.

Institutional Setup:
- **Summit** – The highest authority of the Association rests with the heads of state or government, who meet annually at the Summit level. To date, eleven meetings of the heads of state or government have been held respectively in Dhaka (1985), Bangalore (1986), Kathmandu (1987), Islamabad (1988), Male (1990), Colombo (1991), Dhaka (1993), New Delhi (1995), Male (1997), Colombo (1998), and Kathmandu (2002). The Twelfth SAARC Summit is scheduled to be held in Pakistan.
- **Council of Ministers** – Comprising the foreign ministers of member states, the Council is responsible for formulating policies, reviewing progress, deciding on new areas of cooperation, establishing additional mechanisms as deemed necessary, and, deciding on matters of general interest to the Association. The Council is expected to meet twice a year and may also meet in extraordinary session by agreement of member states. It has held twenty-two regular sessions.
- **Standing Committee** – The Standing Committee comprising the foreign secretaries of member states is entrusted with the task of overall monitoring and coordination of programs. The Committee has held twenty-seven regular sessions and three special sessions, the latest in Colombo in August 2001. The twenty-eight session of the Committee will be held in Kathmandu.
- **Other elements** include – technical committees and specialized ministerial meetings.

Economic Cooperation:
- **Committee on Economic Cooperation** – In July 1991, the Council of Ministers at their Ninth session in Male established the Committee on Economic

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[26] This appendix is prepared by Neerada Jacob.

Cooperation (CEC) comprising Commerce/Trade secretaries of the SAARC member states. The function of the CEC was to formulate and oversee implementation of specific programs within the SAARC framework to strengthen intra-regional cooperation in economic relations. So far, the CEC has held ten meetings.

- **Meetings of Commerce Ministers -** The first meeting of SAARC Commerce ministers was held in New Delhi in January 1996. Since then, two more meetings of Commerce ministers have been held which focused on enlarging the scope and coverage of regional economic cooperation. Meetings of Commerce ministers have also taken place on WTO issues.

- **SAARC Preferential Trading Arrangement (SAPTA) –** The Tenth Summit in Colombo approved the formulation on an institutional framework for trade liberalization in SAARC through SAPTA. IN 1993, the framework agreement on SAPTA was finalized and signed at the Seventh Summit at Dhaka. It entered into force in 1993. So far three rounds of trade negotiations have been concluded under SAPTA covering over 5000 commodities.

- **South Asian Free Trade Area (SAFTA)** – The Tenth Summit in Colombo in 1998 decided on the setting up of a Committee of Experts which would draft a comprehensive treaty regime for creating a free trade area within the region. The Committee has been set up and a draft prepared by the Secretariat is under consideration.

(Source: www.saarc-sec.org/)

Appendix 2: Data Sources

For correlation coefficients of growth and inflation and Structural VAR: (1970-2003)

Growth: Real Gross Domestic Product: GDP Volume; 2000=100; IFS line 99BVPZF
Inflation: IFS line 64..XZF
CPI: IFS line 64…ZF; except Bangladesh's CPI was spliced with the data from United
        Nations Statistical Office. Monthly Bulletin of Statistics; Published: [Lake
        Success, N.Y.: The Office, 1947-) and
GDP deflator: IFS: 99BIPZF

For Openness Index:
Exports: IFS line 70
Imports: IFS line 71
GDP   : IFS line 99B..ZF

For Herfindahl Index:

Data on one-digit SITC codes for Bangladesh, India, Nepal, Pakistan and Sri Lanka was
obtained from United Nations Foreign Trade Statistics of Asia and the Pacific.

For Structural VARs:

*Sample Size for Structural VAR estimation***:**

Country	Sample Size	No. of Observations
Bangladesh	1977—2003	27
Bhutan	1983—2000	18
India	1973—2003	31
Maldives	1980—2003	24
Nepal	1973—2003	31
Pakistan	1973—2003	31
Sri Lanka	1973—2003	31

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Table 1: Economic Structure of the SAARC Countries; 2000

	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
GROWTH AND ECONOMIC STRUCTURE							
GDP Growth	5.9	7.0	4.0	4.6	6.2	4.2	6.0
GDP per capita (PPP $)	1540	n.a.	2730	n.a.	1280	1870	3400
Value Added: Agriculture (% of GDP) 1/	24.6	33.2	24.9	11.2	40.7	26.7	19.5
Value Added: Industry (% of GDP)	24.4	37.3	26.9	n.a.	22.1	23.1	27.5
Value Added: Manufacturing (% of GDP) 1/	14.7	10.2	15.8	4.4	9.4	15.3	16.9
SOCIAL INDICATORS							
Infant Mortality rate	54.0	57.6	68.0	59.0	72.0	85.0	17.0
Life expectancy at birth	61.2	62.2	62.8	68.3	58.9	63.0	73.0
Health Expenditures (% of GDP)	2.4	0.4	4.0	1.3	n.a.	3.2	1.8
Illiteracy rate (youth)	51.6	n.a.	27.4	0.9	39.6	43.0	3.2
Immunization Measles (% below 12 months)	76.0	76.0	56.0	99.0	71.0	54.0	99.0
Population (0-14) (% of total)	37.8	43.0	33.5	42.0	41.0	41.7	26.3
Population (15-64) (% of total)	59.0	52.9	61.5	54.0	55.2	55.0	67.4
Population >65 (% of total)	3.2	4.1	5.0	4.0	3.7	3.3	6.3
Rural population (% of total)	75.0	92.9	72.3	72.4	88.2	66.9	77.2
Population density (per sq. km)	1006.8	17.1	341.7	913.3	161.1	179.1	285.7
INTERNAL AND EXTERNAL BALANCE							
CPI Inflation (average 1991-2000)	5.2	9.8	9.1	7.5	8.9	9.2	9.7
Budget balance (% of GDP) 2/	-2.8	-3.5	-5.2	-4.6	-3.3	-5.5	-9.5
Official Exchange rate (prd avg US$)	52.1	44.9	44.9	11.8	71.1	53.6	77.0
Current Account (% of GDP)	-1.3	-26.0	-0.6	-8.9	2.9	-2.0	-6.4
Trade (% of GDP)	33.3	89.5	30.5	168.7	55.7	34.3	90.2
External Balance (% GDP)	-5.2	-30.2	-2.6	19.6	-9.1	-1.6	-10.8
External Debt (% of GDP)	33.3	41.7	21.7	34.5	51.5	54.0	55.3
ST debt (% of external debt)	1.9	0.5	3.5	10.4	0.9	4.6	7.7
FDI (% of GDP)	0.6	0.0	0.5	2.2	0.0	0.5	1.1
International Reserves (months of imports)	1.9	12.1	6.0	3.0	6.1	1.8	1.5

Source: World Development Indicator, World Bank
1/ Shaded figures for Maldives are for the year 1998
2/ Shaded figure for Bangladesh is for the year 1999

Table 2: Basic Statistics of Different Geographic Regions

Country	Growth		Inflation	
	Mean	Std. Dev.	Mean	Std. Dev.
Western Europe				
Austria	0.034	0.020	0.045	0.018
Belgium	0.032	0.021	0.051	0.024
Denmark	0.027	0.023	0.072	0.024
Finland	0.037	0.023	0.081	0.036
France	0.034	0.017	0.068	0.031
Germany	0.029	0.022	0.039	0.016
Ireland	0.040	0.022	0.086	0.052
Italy	0.036	0.023	0.098	0.053
Netherlands	0.032	0.022	0.051	0.028
Norway	0.037	0.018	0.065	0.033
Portugal	0.044	0.033	0.122	0.072
Spain	0.041	0.026	0.102	0.043
Sweden	0.027	0.018	0.072	0.026
Switzerland	0.024	0.026	0.044	0.022
United Kingdom	0.024	0.021	0.081	0.051
Average	**0.033**	**0.022**	**0.072**	**0.035**
East Asia				
Australia	0.031	0.019	0.094	0.029
Hong Kong	0.080	0.046	0.085	0.038
Indonesia	0.062	0.023	0.147	0.103
Japan	0.043	0.020	0.045	0.047
Korea	0.085	0.038	0.122	0.078
Malaysia	0.066	0.033	0.046	0.060
New Zealand	0.025	0.042	0.086	0.059
Philippines	0.037	0.045	0.127	0.091
Singapore	0.075	0.034	0.042	0.044
Taiwan	0.083	0.035	0.066	0.070
Thailand	0.070	0.031	0.067	0.051
Average	**0.060**	**0.033**	**0.084**	**0.061**
The Americas				
Argentina	0.006	0.043	1.184	0.771
Bolivia	0.016	0.038	0.746	1.194
Brazil	0.051	0.048	0.809	0.661
Canada	0.038	0.023	0.067	0.031
Chile	0.023	0.075	0.581	0.610
Columbia	0.043	0.020	0.211	0.034
Ecuador	0.056	0.069	0.217	0.148
Mexico	0.040	0.041	0.340	0.233
Paraguay	0.058	0.045	0.165	0.076
Peru	0.015	0.065	0.697	0.776
United States	0.028	0.025	0.058	0.024
Uruguay	0.016	0.045	0.476	0.127
Venezuela	0.015	0.043	0.159	0.156
Average	**0.031**	**0.045**	**0.439**	**0.372**
South Asia				
Bangladesh	0.048	0.025	0.059	0.077
Bhutan	0.067	0.034	0.087	0.039
India	0.049	0.030	0.082	0.056
Maldives	0.094	0.056	0.094	0.170
Nepal	0.037	0.030	0.087	0.053
Pakistan	0.049	0.022	0.089	0.055
Sri Lanka	0.044	0.020	0.102	0.055
Average	**0.055**	**0.031**	**0.086**	**0.072**

Note: Statistics for Western Europe, East Asia and The Americas is from Bayoumi and Eichengreen (1994) Table 1 (1960-90); Statistics for South Asia are author's calculations, period 1970-2003 or within, depending on data availability.

Table 3a: Pairwise Correlations of Growth across SAARC Countries: 1971-2003

	BGD	BTN	IND	LKA	MDV	NPL	PAK
Bangladesh	1.00						
Bhutan	0.30	1.00					
India	-0.32	-0.10	1.00				
Sri Lanka	-0.03	-0.19	0.04	1.00			
Maldives	0.27	-0.16	-0.25	0.13	1.00		
Nepal	0.22	-0.33	0.04	0.10	-0.12	1.00	
Pakistan	-0.14	-0.06	0.26	0.23	0.09	0.05	1.00

Table 3b: Pairwise Correlations of Inflation (CPI) across SAARC Countries: 1970-2003

	BGD	BTN	IND	LKA	MDV	NPL	PAK
Bangladesh	1.00						
Bhutan	0.16	1.00					
India	0.66	0.73	1.00				
Sri Lanka	0.37	0.40	0.40	1.00			
Maldives	0.37	0.12	0.12	0.06	1.00		
Nepal	0.49	0.69	0.73	0.30	0.23	1.00	
Pakistan	-0.18	0.40	0.67	0.19	0.05	0.37	1.00

Table 3c: Pairwise Correlations of Inflation (GDP deflator) across SAARC countries: 1971-2003

	BGD	BTN	IND	LKA	MDV	NPL	PAK
Bangladesh	1.00						
Bhutan	-0.34	1.00					
India	-0.06	-0.25	1.00				
Sri Lanka	0.27	-0.24	0.45	1.00			
Maldives	0.02	-0.20	0.33	0.55	1.00		
Nepal	0.75	-0.21	0.04	0.02	0.15	1.00	
Pakistan	0.47	0.31	0.20	0.42	0.24	0.30	1.00

Table 4a: Openness of SAARC Economies: 1975-2003

OBS	BGD	BTN	IND	LKA	NPL	PAK
1975	15.9	n.a.	11.4	36.0	18.0	28.6
1980	26.2	47.3	13.5	77.0	21.7	33.7
1985	24.4	54.9	11.8	53.2	24.0	29.1
1990	18.2	53.1	12.8	57.3	24.9	33.0
1995	25.5	69.5	17.9	69.1	39.7	33.0
2000	28.9	63.2	20.2	72.0	44.5	33.6
2003	28.6	n.a.	21.5	64.7	40.4	35.9

Note: Openness = 100*(exports + imports)/ GDP; comparable data for Maldives is not available

Table 4b: Intra-SAARC Trade

	1985	1990	1995	2000
Bangladesh	4.65	5.83	12.82	7.85
India	1.55	1.41	2.68	2.47
Maldives	12.46	12.02	14.25	22.06
Nepal	34.27	10.24	14.85	34.78
Pakistan	2.76	2.65	2.16	2.68
Sri Lanka	5.51	5.60	7.80	7.38

Note: These figures represent trade of a SAARC nation with other
SAARC countries in total trade; 100*(trade with SAARC)/Total Trade
Source: Author's calculations from Direction of Trade Statistics
Yearbook, IMF, various issues

Table 5: Herfindahl Index for SAARC
Countries (1981-1998)

	Mean	Std. Dev.
Bangladesh	0.37	0.10
India	0.22	0.02
Nepal	0.31	0.06
Pakistan	0.34	0.05
Sri Lanka 1/	0.29	0.04
SAARC	0.31	0.06
Non-currency union members 2/	0.23	0.24
Currency union members 2/	0.31	0.19

1/ Sample for Sri Lanka is 1981-1994
2/ Figures taken from Rose and Engel (2002)

Table 6: Major Exports of SAARC Countries; 1999

		% of exports
Bangladesh	Garments and knitwear	69.2
	Fisheries	7.9
	Jute goods	6.2
	Leather	4.1
	Raw jute	1.4
Bhutan	Electricity	44.8
	Calcium Carbide	12.1
	Cement	9.6
	Particle board	5.5
India	Textile goods	27.6
	Gem and jewellery	22.4
	Engineering goods (inc software)	14.7
	Chemicals	11.2
	Leather and leather goods	4.4
	Handicrafts	3.8
Nepal	Garments	27.0
	Woollen carpets	19.1
	Vegetable ghee	5.3
	Toothpaste	4.4
	Jute goods	2.1
Pakistan	Cotton fabrics	14.0
	Cotton yarn	12.0
	Knitwear	8.6
	Ready-made garments	8.1
	Rice	6.7
Sri Lanka	Textiles and garments	52.7
	Tea	13.5
	Diamond and jewellery	3.3
	Coconut products	2.8
	Petroleum products	1.6

Source: Economist Intelligence Unit

Table 7a: Pairwise Correlations of Supply Shocks across SAARC Countries: 1973-03

	BGD	BTN	IND	LKA	MDV	NPL	PAK
Bangladesh	1.00						
Bhutan	-0.01	1.00					
India	-0.15	-0.02	1.00				
Sri Lanka	-0.03	-0.20	-0.04	1.00			
Maldives	-0.41	0.29	-0.06	0.12	1.00		
Nepal	0.24	-0.03	0.12	-0.12	-0.20	1.00	
Pakistan	-0.37	-0.15	0.07	0.03	0.11	-0.06	1.00

Table 7b: Pairwise Correlations of Supply Shocks across SAARC Countries: 1995-03

	BGD	BTN	IND	LKA	MDV	NPL	PAK
Bangladesh	1.00						
Bhutan	0.33	1.00					
India	-0.68	-0.60	1.00				
Sri Lanka	-0.28	0.67	0.18	1.00			
Maldives	-0.44	-0.53	0.42	0.53	1.00		
Nepal	0.36	-0.62	0.06	-0.30	0.14	1.00	
Pakistan	-0.28	-0.35	0.73	0.08	-0.05	-0.06	1.00

Table 7c: Pairwise Correlations of Demand shocks across SAARC Countries: 1973-2003

	BGD	BTN	IND	LKA	MDV	NPL	PAK
Bangladesh	1.00						
Bhutan	0.29	1.00					
India	0.03	0.31	1.00				
Sri Lanka	-0.13	0.07	0.18	1.00			
Maldives	-0.30	-0.29	-0.04	0.08	1.00		
Nepal	0.11	0.53	0.57	0.34	0.18	1.00	
Pakistan	0.22	0.37	0.35	0.16	0.16	0.46	1.00

Table 8: Disturbances and Adjustment Across Different Geographic Regions

	Supply Disturbances		Demand Disturbances	
	Size	Adjustment Speed	Size	Adjustment Speed
SAARC				
Bangladesh	0.008	0.741	0.028	1.195
Bhutan	0.023	0.727	0.033	1.532
India	0.025	0.913	0.040	1.411
Maldives	0.036	1.053	0.047	0.512
Nepal	0.016	0.888	0.034	1.138
Pakistan	0.028	0.612	0.040	0.990
Sri Lanka	0.023	0.847	0.038	0.968
Average	0.023	0.826	0.037	1.106
Western Europe				
Austria	0.018	0.999	0.017	0.415
Belgium	0.028	0.668	0.020	0.508
Denmark	0.022	1.104	0.017	0.135
Finland	0.018	0.875	0.027	0.684
France	0.034	0.243	0.014	0.101
Germany	0.022	1.193	0.015	0.659
Ireland	0.021	1.222	0.038	0.382
Italy	0.030	0.427	0.036	0.380
Netherlands	0.033	0.692	0.019	0.511
Noway	0.031	0.651	0.034	0.704
Portugal	0.061	0.426	0.026	0.367
Spain	0.057	0.083	0.015	0.123
Sweden	0.030	0.261	0.012	0.419
Switzerland	0.031	0.997	0.016	0.858
United Kingdo	0.018	0.425	0.019	0.016
Average	0.030	0.684	0.022	0.417
East Asia				
Australia	0.011	0.925	0.017	0.910
Hong Kong	0.023	1.590	0.044	1.190
Indonesia	0.013	1.239	0.071	1.335
Japan	0.012	1.667	0.017	0.270
Korea	0.029	0.886	0.038	0.115
Malaysia	0.032	1.038	0.063	1.607
New Zealand	0.060	0.648	0.031	0.291
Philippines	0.089	0.587	0.081	1.475
Singapore	0.032	1.353	0.028	1.072
Taiwan	0.021	1.466	0.049	0.673
Thailand	0.026	1.381	0.042	1.279
Average	0.032	1.162	0.044	0.929
The Americas				
Argentina	0.033	1.141	0.438	1.126
Bolivia	0.069	0.585	0.636	1.302
Brazil	0.084	0.706	0.068	0.983
Canada	0.020	1.052	0.028	0.703
Chile	0.064	1.214	0.251	0.548
Colombia	0.026	0.823	0.027	0.720
Ecuador	0.162	0.402	0.076	0.987
Mexico	0.059	0.775	0.072	0.865
Paraguay	0.094	0.459	0.064	0.719
Peru	0.050	1.169	0.062	0.452
United States	0.028	0.269	0.015	0.078
Uruguay	0.049	1.014	0.074	1.227
Venezuela	0.062	0.810	0.074	0.949
Average	0.062	0.801	0.145	0.820

Note: Figures for Western Europe, East Asia and The Americas is from Bayoumi and Eichengreen (1994), SAARC figures are author's calculations