Economic Integration: An Analysis of Major SAARC Countries

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Abstract

Purpose-The paper deals with the relationship between GDP, GDP per capita, Exchange rate volatility, and common border on intra-regional trade among SAARC countries.

Design/methodology/approach-The methodology implemented is based on the Extended Gravity Model, while the empirical analysis is based on the SAARC countries for the time period 1991-2010.

Findings- Results show that GDP, GDP per capita, Exchange rate volatility, and common border on intra-regional trade had significant effect among SAARC countries. However, this effect is poor which reflect through small magnitude of coefficient.

Research limitations/implications- The dataset includes annual time series from 1991-2010 for major SAARC countries including Nepal, Sri Lanka, India, Pakistan, and Bangladesh. However, due to insignificant trade Maldives, Afghanistan and Bhutan are excluded from the study. Due to large heterogeneity in variables and limited role of OLS technique the Generalized Least Square (GLS) method is applied in this study.

Practical implications-As political disputes reduced among SAARC countries, the trading activity will be enhanced.

Originality/value- The paper differs from the previous ones in introducing the Exchange rate volatility, and common border among the explanatory variables by implementing a GLS technique; this is one of the first empirical applications on SAARC countries.

JEL classification: F15, F17

Key words: Intra-regional trade, Economic Integration, Gravity Model

Introduction

Economic integration maximizes resource utilization and productivity to achieve country's welfare in the fields of business, trade, banking and investment. In such situation the world agreements and understanding are developed among countries to facilitate merchandise and service trade and business to enhance welfare and standard of living of their people. Till June 2014,585 notifications of RTAs had been received by the GATT/WTO, of these 379 were in force among them NAFTA, EU and ASEAN are quoted as most successful[1].

The literature providesthe evidence that free trade in the world promotes maximization of resource utilization and human welfare,however, formation of regional trade agreements (RTAs) and trading blocs is second best option. To exploit full potential of comparative advantages, countries moved towards openness, trade facilitation and trade liberalization leading to thecreation of an RTA. Moreover,economies of scale are another reason for economic integration because a small nation cannot utilize its full production capacity due tosmall domestic market .

To achieve such advantage, South Asian Association for Regional Cooperation (SAARC), group of eight nations[2], was formed in 1985.However, due to cautious and precarious behavior of these nations the process of regional integration was very slow. In this regardthe first step towards economic integration of SAARC countries was the signing of South Asian Preferential Trading Agreement (SAPTA) in April 1993and was made effective in December 1995.Under this agreement SAARC member states offered trade concessions to other members for a specific list of goods .The process of preferential trade concessions was continued through meetings and negotiations among member countries for further liberalization of trade.

To expand the process of economic integration SAARC member countries signed another agreement, South Asian Free Trade Area (SAFTA) in 2004 and became operational in 2006, with the objective to develop a complete free trade area in South Asia by the end of 2016[3]. Since then SAARC member countries made struggle towards regional cooperation and economic integration by reducing rate of tariff for the import of member countries, establishing SAARC standers organization, phasing out sensitive list and signing an agreement on trade in services.

This paper is an attempt to assess the level of intra-regional trade among SAARC countries as it is the key indicator of economic integration of a regional bloc. Next section covers a review of literature followed by another section provides a brief description of macroeconomic indicators and analysis of intra-regional trade for last two decades of major SAARC countries. Section four includes model specification and estimation techniques while fifth section describes sources ofdata collection. The last section related to conclusion and recommendations to improve intra-regional trade.

Review of Literature

The economic literature provides various forms of regional economic integration..In ascending order of the degree of integration, the relevant literature, for example,Pinder(1969),Balassa(1973),Maksimova(1976),Holzman(1976),Panic(1988),Robson(1987), describes the following six forms of economic integration: First, a lowest form where a preferential tariff agreement among countries where signatory countries adopt a lower tariff for mutual trade as compared to the tariff

on trade for other countries. Second a free trade area(FTA) in which the member countries of FTA agree to eliminate all tariff and quantitative restrictions on mutual trade. But every country included in FTA maintains its own tariff and other restrictions on trade with nonmember countries. Third is a custom union in which all member countries in addition to removing all tariff and other trade restrictions for member countries, they develop a common external tariff on imports for nonmember countries.A common market is fourth form of economic integration in which in addition to custom union, free mobility of factors of production and common regulations for movement of factors are adopted.Economic union is the fifth form of economic integration where a common market of group of countries develop common system of fiscal, monetary ,industrial and transport policies. The highest form is the monetary union which adopts a single common currency.

Viner(1950) first introduced the concepts of trade creation and trade diversion in relation to economic integration among a group of countries where asLipsey (1960) in his, "Thetheory of custom union,A general survey", pointed out that welfare gains or loss from a custom union can be measured by analyzing economies of scale,specialization in production and changes in terms of trade.Balassa(1967) presented his views as process of economic integration proceeds in a group of countries trade barriers between market diminish and supranational common market emerges with free movement of economic factors which leads to further integration not only economically but also politically.

Bhagwati (1991) used the terms building or stumbling blocks in reference to regional trading blocs. According to him regionalism is discriminatory in nature and a regional block is a building block if it promotes multilateralism and it is a stumbling block if acts as an obstacle in multilateralism.

Mohanty(1991),in his study indicated that, " despite the almost certain losses involved if trade diversion occurs but if there are significant employment spin offs of such integration then trade diversion could be used as an argument for trading block".Krugman (1993) pointed out that in regional trading block economies of scale leading to specialization in few brands and making on large scale.

Baldwin (2006) indicated that as an RTA starts functioning and reaps benefits, the non-member countries are forced to join existing RTA due to subjecting political and economic forces.

Fandle (2008) presented his views about RTA between developing and developed countries and indicated that RTA between developing and developed world may be detrimental and multilateral negotiations be preferred.Fry and Honnold(2010) presented a report on economic integration and export competitiveness for ASEAN countries. Their findings indicated that intra-regional trade in the areas of agro-based products auto motives, electronics, textile and apparel and wood based products increased very significantly due to trade agreements and trade facilitation measures.

Trotignon(2010) used gravity model on panel data and explained his findings that all the groups chosen for study including Economic and Monetary Union indicated significant bilateral trade.

South Asian economies, on the contrary, have been unable to gear up market integration either formally or informally, and the sub-region has remained the least integrated, although its geography and comparative advantages hold the potential for a highly integrated trade, investment, and production space.(Tewari 2008).

Moinuddin(2013) noted that little has been achieved under these instruments, and barring Afghanistan and Nepal, all the South Asian economies depend heavily on markets outside the region as their export destination.He further argues that South Asian countries will need to address not only economic factors such as trade facilitation and infrastructure development, but also some non-economic factors like creating political will and building confidence. From the above discussion it has been very clear that during last 29 years of formation of SAARC, there has been slow progress in achieving its objectives. Politics has been a major hurdle in slowing the process of economic integration in South Asia.

Macroeconomic Indicators of Major SAARC Countries

In this section a review of macroeconomic indicators of major SAARC countries is presented. The section is subdivided into three parts, the first part depicts development indicators of major SAARC countries, while second discusses the intraregional trade and last gives information about tariff reduction program.

Development Indicators: A sharp diversity exists in South Asia which appears in a range of macroeconomic indicators, as India the most populous in the region and second largest in the world while Nepal is very small country ranks 42 in world population. But South Asia a very populous region of the world as it comprises 1/5 th of the world population so rich with the human resource but 70% of the South Asian population belongs to rural area and a substantial part of whole population is living below poverty line. Most of the countries of the region rank very low in various human development sectors like literacy rate, life expectancy, per capita income as it is indicated by HDI ranking which is expressed in Table -1

Table-1 Main Macroeconomic Indicators of SAARC Counties

Indicators	Bangladesh	India	Pakistan	Nepal	Sri Lanka
GDP(Current US $ billions)	100.35	1684.3	176.47	16.01	49.56
GDP(Per Capita US$)	675	1375	1017	535	2400
Total Population(Millions)	148	1225.7	173.3	29.9	20.0
Population below Poverty Line (%)	31.5	29.8	22.3	25	9.0
Life Expectancy(Years)	69	65	65	68	75
Adult Literacy Rate (%)	57	61	56	60	91
HDI Ranking	146	134	145	157	97
Source: World Development Indicators 2010 (World Bank)					

Intra-regional Trade: As the process of integration and openness among the countries of a region proceed their intra-regional trade rises so the ratio intra-regional trade to world trade increases. It can also demonstrate the outcome of

regional integration efforts. Table-2 presents an overview of intra-regional trade of some major regional trading area(RTAs) indicating that APEC,EU, Euro Area are most integrated RTAs while ASEAN, MERCOSUR,CARICOM and LAIA have significant degree of regional integration and openness. GCC and SAARC have modest level of integration registering intra-regional trade to their total world trade is less than 10%.

Table-2 indicates that percentage of intra-regional trade to total world trade for all of the RTAs has maintained or declined during the period from 1995 to 2010 but in SAARC region it slightly gained from 5.1% to 6.09% which is the result of trade liberalization process going on among SAARC countries.

Table-2Percentage of intra-regional trade to regional world trade

Regions	1995	2000	2005	2010
APEC	71.07	73.05	70.80	67.36
ASEAN	29.93	23.10	25.27	24.99
CARICOM	14.51	15.34	13.63	14.04
EU	65.91	67.53	67.62	64.79
Euro Area	51.74	51.64	51.48	48.70
GCC	6.8	4.75	4.91	5.13
LAIA	17.38	13.57	14.03	15.94
MERCOSUR	20.50	20.94	12.90	15.82
SAARC	5.10	4.55	6.82	6.09

Source: UNCTAD stats. (2012)

Trade Liberalization Process: According to SAFTA agreement signed by all SAARC countries in 2004 and started implementation by 2006, all foreign ministers agreed on a framework with zero custom duty on the trade of practically all products in the region by the end of 2016.In addition to this various trade facilitation measures have been taken like establishing a SAARC Arbitration Council in July 2007, creation of South Asian Standard Organization (SARSO) in August 2011 and SAARC Agreement on Trade in Services in November 2012.

An important issue in intra-regional trade of SAARC countries is the existence of sensitive list which consist of a list of commodities from every country on which tariff reduction program is not applied. The working group on reduction in sensitive list under SAFTA has held several meetings and substantial reduction in commodities has occurred but still every country maintains a large number of tariff lines in the list for example India 868,Pakistan1169,Sri Lanka1042, Bangladesh 1241 and Nepal 1295.

Methodology of Analysis

Model Selection: Tostudy the process of economic integration a region, analysis of regional trade flows is very essential because this is key of integration. Literature in the field of economics presents various techniques and models to assess trade flows. We use the Gravity Model presented by Tinbergen(1962)in his

valuable work, "Shaping the World Economy: Suggestions for an International Economic Policy",proposed the model first time that bilateral trade volume between countries will be directly proportional to their Gross Domestic Products and inversely proportional to the distance between them. The standard gravity model does not provide the theoretical foundation, however the studies of Linnemann(1966), Anderson (1979),Bergstrand (1985),Frankle(1995) and Anderson and Wincoop(2003) justified the gravity equation and developed microeconomic foundation for its high statistically explanatory power.

The standard gravity model equation is expressed as

$$F_{ij} = G\frac{M_i M_j}{D_{ij}}$$ --(1)

In the above equation G is the constant, F stands for trade flow between countries i and j, D represents the distance and M_i and M_j stand for the economic dimensions of the countries or GDP that are being measured. The equation can be changed into a linear form for the purpose of econometric analyses by employing logarithms. In its linear form the equational representation of the Gravity Model of Trade would be as follows:

$lnF_{ij} = \beta_o + \beta lnM_i + \beta lnM_j - \beta lnD_{ij} + e_i$ -- (2)

Gravity model establishes a baseline for bilateral trade flows as determined by GDP, population and distance. The impact of related trade policies on trade flows can then be measured by adding policy variables to the equation and estimating deviations from the baseline flows

Rose (2000) suggested an extended gravity equation including other factors which might affect bilateral trade like distance, population, common land border, exchange rate variability, free trade area etc. We have omitted few binary variables and the resulting final specification of our model, in a log linear form, is as follows:

$$\ln X_{ij,t} = \beta_0 + \beta_1 \ln(Y_i Y_j)_t + \beta_2 \ln\left(\frac{Y_i Y_j}{Pop_i Pop_j}\right)_t + \beta_3 \ln D_{ij}$$

$$+ \beta_4 Cont_{ij} + \beta_5 V(e_{ij})_t + \varepsilon_{ij,t}$$ ----------(3)

Where subscripts i, j, t refer to countries i, j and time period, respectively, X indicates the value of bilateral trade between countries, Y is the real GDP, D is the distance, $Cont$ is a binary (dummy) variable for a common land border, V (e) is the volatility of the bilateral nominal exchange rate between countries at time t and □ is the error termrepresenting a large number of other influences on bilateral trade.

Data sources and Measures: The dataset includes annual time series from 1991 to 2010 for major SAARC countries including Nepal, Sri Lanka, India, Pakistan, and Bangladesh. Maldives, Afghanistan and Bhutan are omitted due to insignificant trade flows and non-availability of complete data. There are 10 bilateral trade relationships with five countries and 20 time periods making a total

of 200 observations. Trade data (in billions of US dollars) are collected from the *International Monetary Fund Direction of Trade Statistics* (IMF DOTS).Population and Real GDP data are taken from the *World Development Indicators*(World Bank).The distance data is obtained from the *Time and Date website*(timeand date.com)

Data on Exchange rate volatility: Monthly data on exchange rate of national currency into US dollars of all five countries are taken from IFS and WWW.oanda.com. The most commonly used method to measure the exchange rate volatility is the standard deviation of the first difference of logarithms of exchange rate.This measure has the property of being equal to zero if exchange rate follows a constant trendor stability,which is presumed to be anticipated and there for would not be source of uncertainty.

Estimation Issues: The model as described by equation (2)above was estimated as panel estimation.The panel data estimation exhibits many advantages over cross sectional analysis. Panels can capture the relevant relationships over time and the panel data monitors unobservable individual country pair effects .But in panel data estimation the existence of hetroscasdicity, multicollinearity and autocorrelation is possible.

Due to large heterogeneity in variables of cross sectional dataand the OLS estimators do not cover inconsistent variances so researchers recommended the use of Generalized Least Squares(GLS) methodwhich is applied in this study.

Results and Discussion

Regression shows the casual relationship between dependent variable and independent variables.Bilateral trade is taken as dependent variable among SAARC countries and GDP,per capita income,exchange rate volatility,distance and common border are taken as independent variables. The regression analysis focuses on the following null hypothesis.

Ho: The GDP, per-capita income, exchange rate volatility, distance and common border have no impact on bilateral trade among SAARC countries

Regression analysis is given in table-3.The second column of table -3 shows the uni-variate regression between bilateral trade and GDP, per-capita income, exchange rate volatility, distance and common border among SAARC countries.
The uni-variate significant relation between trade and GDP found among SAARC countries.The regression coefficient is positive and significant which indicates that as GDP increases bilateral trade among SAARC countries increases. However, the magnitude of coefficient is very small which is consistent with empirical results of intra-regional trade as indicated in table-2.The reason might be that SAARC is political rather than aneconomical body.The uni-variate significant relation between bilateral trade and per-capita income is positive and insignificant which indicates that citizens of SAARC countries dislike the products of other SAARC countries. Bilateral trade is negatively and insignificantly affected with volatility of exchange rate.It indicates that in order to improve bilateral trade among

SAARC countries it needs to develop an alternative mechanism for payments of imports to combat the issue of exchange rate volatility.

The estimated coefficient of distance variable is positive but statistically significant. It is the common border that seems very important for many SAARC countries. The estimated coefficient of the common border is positive, and it is consistent with empirical result of bilateral trade among SAARC countries with the exception of Pakistanas shown in Table -3.

Table -3: Panel Estimates of Bilateral Trade with GLS

	Coefficient	St.. Error	t-Statistics
C	---8.010158	1.706033	--4.695194
LGDP	0.321633***	0.067494	4.765330
LGDPOP	0.101171*	0.096579	1.047543
ERV	--0.408342*	1.258836	--0.324510
LDIST	0.188976**	0.095652	1.975666
DCB	0.789579***	0.211278	3.737156

R^2 = 0.854696   D-W Statistics =2.245990
R^{-2} =0.845969   No. of Observations= 200
*, ** and*** indicates statistical significance at the 1 percent,5 percent and 10 percent Levels respectively

The values of R^2 and adjusted R^2 are 0.85 and 0.84 respectively indicating that around 85% of bilateral trade among SAARC countries is explained by our regression model. The value of Durbin-Watson statistics is equal to 2.24 so we can assume that there is no first- order autocorrelation either positive or negative among these variables.

Conclusion and Recommendations

The impact of important variables on bilateral trade of major SAARC countries has been estimated. According to Gravity Model, with its theoretical support in literature, product of real GDP of two countries affects positively on their bilateral trade. According to our estimated coefficient, product of real GDP is positivewhile it is smaller than other region. But it is consistent with empirical results of intra-regional SAARC trade. For example India is largest in terms of size of GDP and Sri Lanka ranks fourth, while Pakistan and Bangladesh are second and third respectively but in bilateral trade the largest share of India is with Sri Lanka which is 35% while with Pakistan it is 11.5% and with Bangladesh it is 24.5%.Very low share of bilateral trade of India with Pakistan is probably due to political disputes among both countries and unless these disputes are settled bilateral trade could not enhanced.

As results show that bilateral trade is negatively affected with exchange rate volatility so there is a need to make effective use of Asian Clearing Union which is a system of settlement of monetary transaction and South Asian countries are member of this system

Common border is another factor having expected positive sign of estimated coefficient as reducing the trade cost and communication barrier. In major SAARC countries common border affects very positively on bilateral trade. It is also consistent with empirical results that total SAARC trade of India in 2010,highest share is with Bangladesh(24.5%),Nepal(23%),Pakistan(11.5%) and with Sri Lanka(35%)which does not have common border but very close to India. Similarly in 2010 out of total trade of Bangladesh with SAARC, 89.3% with India. In case of Pakistan share of trade with India is 36% in 2010 out of its total trade with SAARC countries.So intra-regional trade of SAARC countries is consistent with estimated results with exception of Pakistan which may be due to low trade facilitation measures and political reasons.

The progress of major SAARC countries towards economic union is very modest as indicated in table-2 that intra-regional trade out of total trade has very slightly improved from 5.1% in 1995 to 6.09% in 2010.Looking at this level of intra-regional trade and low degree of integration among these countries, it seems impossible for SAARC countries to develop a completefree trade area by the end of 2016 as it was agreed by all countries in 2004.Recent SAARC summit held in Katmandu, Nepal attended by the leaders of all countries declared their commitment for developing South Asian Economic Union in phased and planned manner. Moreover harmonization of technical trade barriers, mechanism of poverty alleviation, developing SAARC Development Fund were also included in official declaration. But declaration is not enough there is a need of taking concrete steps for implementation.For the enhancement of intra-regional trade,it is recommended that policy makers of these countries need to focus on (a) improvement in trade facilitation procedures, (b)minimizing trade barriers and lowering sensitive list (c)establishing financial institutions mutually for the improvement of capital resources,(d) increasing diversification and specialization in production of goods and services (e) removal of non-tariff barriers and most important is to put aside political differences so that they could enhance intra-regional trade and achieve the objective of improving welfare of their people.

Notes

1. www.wto.org
2. See for example; Linda Low (2004), Cohn Theodre H (2009) and WTO article XXIV
3. Afghanistan was approved as 8th SAARC member in 14th SAARC summit in2007
4. All seven members of SAARC agreed to bring down zero custom duty by 2016 when signed SAFTA in 2004
5. SAARC Secretariat, PO BOX 4222,Kathmandu,Nepal

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