



# Intra Regional Trade Analysis: Three Decades of Regionalism and Future Implications

Sarina Zainab Shirazi<sup>1</sup>, Tabassum Iqbal<sup>2,\*</sup>

<sup>1</sup>Head, Department of Social Sciences and Business Management, The Millennium Universal College (TMUC), Islamabad, Pakistan

<sup>2</sup>Senior lecturer and Program Manager, Bahria University, Islamabad, Pakistan

## ABSTRACT

**Introduction:** Trading blocs (EU, NAFTA, ASEAN, SAARC) are believed to bridge the gap between high and low income countries by implementation of equal partnerships, reinforced economic development and maintenance of balance of trade amongst participating nations. However, the advantages accrued by NAFTA and EU surpass those of the developing Asian nations. This disparity warrants careful examination in order to ensure equal gains from regionalism phenomenon.

**Objectives:** The primary objective of this study is to focus on South Asian Association for Regional Cooperation (SAARC), a region that shows very slow integration compared to other trade associations. For this purpose, a comprehensive panel data empirical investigation of SAARC in the context of economy size, geographical distances, language, ethnicity, common border and regional trade agreements (RTA) is conducted for a period of 1985 – 2015.

**Methods:** The aspect of the size of trading economies and the distance between them is a point most accurately addressed by the gravity equation. The gravity model is a robust econometric analysis that portrays international trade scenario accurately. Likewise, the augmented gravity equation with the incorporation of gravity variables (i.e. GDP of trading partners taken as proxy for masses and bilateral distance of capital cities taken as proxy for distance), trade agreements (regional and bilateral), inflation rates, exchange rates, and additional social indicators (common border, ethnicity and language) demonstrate predictive properties that support the concept of “economic geography” thus producing analytical results that highlight international trade flows and their welfare impacts on the integration processes of SAARC.

**Results:**  $GDP_i$  (GDP of source country) and  $GDP_j$  (GDP of destination country) and distance between the capitals of the trading partners are proven to be statistically significant, Once total trade is taken as dependent variable. Upon inclusion of social, cultural and trade related factors which include ethnicity, language, border and regional trade agreement, added variables are all positively significant. Results reveal that intra SAARC transactions are impacted by economy size and distance. Further specific examination of factors on exports and imports within SAARC show that, economy sizes of source and destinations, geographical distance, existing inflation rate and exchange rate and trade openness enhance exports/imports. For exports in particular effectiveness of common language, common border, ethnicity and regional trade agreement was established while level of imports has been found to be impacted by only two factors i.e. common border and ethnicity.

**Conclusion:** Depending upon the structure of concerned economies appropriate policy mechanism may be developed to enhance their trade, exports and imports within region over a period of time. Additionally, it is

suggested that among these regions, under certain trade agreements, total trade, total exports and total imports can be increased for their growth and developmental processes

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**\*Address of Correspondence:**

tabassum.buic@bahria.edu.pk

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## 1. INTRODUCTION

Globalization is a process that diminishes geographical distances in order to establish and maintain cross border integration. The idea of a global village surpasses national boundaries and provides the freedom to engage in international trade. This faith in globalization, trade creation and evolution of a more equitable world inspired the study of trade mechanism impact on welfare by using the gravity model<sup>1</sup>. For the past century the impact of globalization on economic development has been a core issue. The advantages of globalization and its effective role in bridging economic disparities have generated a lot of debate. As a result of this phenomenon the world witnessed scientific advancements, technological innovations, reduced transportation costs, effective communication and integrated financial systems. The close scrutiny of this process at regional level leads to valuable policy implications.

International trade is a way of obtaining benefits for humanity from the entire global market, rather than being restricted to a localized effect. In the absence of trade, countries would be restricted to their own domestic markets. However, there are several constraints that make this exchange challenging. These impediments surface in the form of tariffs, quotas, border clearance delays and social, cultural, ethnic and religious factors. In order to address these impediments General Agreement for Tariff and Trade (GATT) was formed in 1947 with the intention of systematic global integration<sup>2</sup>. The agreement to globalize was dominated by the European countries and their allies until the 1980s. GATT progressed in terms of increased number of signatories from 23 nations to 123 nations in 1994 and in the year 1995 it established a replacement body known as the World Trade Organization (WTO). GATT was carried forward by WTO resulting into regional integration of markets across the world as reciprocating regional trading agreements (RTAs) /unilateral preferential trade agreements (PTAs) grew to astonishing numbers of 312 including all accessions to the WTO database<sup>3</sup>.

<sup>1</sup> Jan Tinbergen was a Doctor of Philosophy of physics and was given the job of eradicating economic inequalities to promote welfare in the 1950's. He then went on to be nominated as the first Economics Alfred Nobel Prize (1969) winner and his practical implementation of the tools he had gained from Newtonian physics surfaced as important concepts that have proved to be effective till date.

<sup>2</sup> In order to bring harmony to the world order the representatives of 44 allied nations joined together to attend "United Nations Monetary and Financial Conference" at Bretton Woods. The three main outcomes of the conference were; (1) formation of International Bank for Reconstruction and Development (IBRD); (2) formation of International Monetary Fund (IMF); and (3) recommendation for future international economic co-operation. The first two outcomes were directed towards ending the economic nationalism emphasizing that countries were free to maintain their national interests but should not resort to creating economic spheres of influence. The foremost recommendation of the conference was that the industrial nations lower barriers to trade and capital mobility and this lead to formation of GATT in 1947.

<sup>3</sup> [www.wto.org](http://www.wto.org) (As accessed on April 2, 2019).

The regional trade blocs classification by WTO comprise Asia, North America, Latin America, Western Europe, Middle East, Africa, Central & Eastern Europe and Baltic States. Trading blocs were believed to bridge the gap between high and low income countries by implementation of equal partnerships, reinforced economic development and maintenance of balance of trade amongst participating nations. Supporting result of WTO initiative are North American Free Trade Agreement (NAFTA), European Union (EU) and the inclusion of Eastern Europe and Turkey that follow consolidated trade policies (Maria, 2017).

Observing the region level scenario of EU, NAFTA and ASEAN is a testament to the shared advantageous growth of signatories. However, the advantages accrued by NAFTA and EU surpass those of the developing Asian nations. This disparity warrants careful examination in order to ensure equal gains from regionalism phenomenon.

Earlier trade models such as those of Ricardo (1817), Heckscher-Ohlin (1919), and increasing returns to scale (IRS) models essentially focused on factor endowments, specialization and product differentiation, and economies of scale. These models have also referred to theorems that incorporate distance between trading partners as an important factor. However, the aspect of the size of trading economies and the distance between them is a point most accurately addressed by the gravity equation. With the conflicting views put forward by these complex trade models by the above-mentioned models over the years were rectified by the gravity equation that emerged as a simplified solution to international trade flow prediction mechanism (Bayar, 2017).

The pioneering work on the gravity model based on Newtonian physics endorses the models robustness and empirical estimation power in evaluation of regional trade. This model is also instrumental due to the explanatory and predictive properties in the context of RTA through incorporation of country masses/incomes and bilateral distances. The further enhancement to the model can be made by adding variables that account for common borders, language, ethnicity, colonial ties, and other resistance terms like border clearing issues and infrastructural inefficiencies. The most effective computational evidences emerge when analysis is conducted on panel data. Considering that SAARC is an example of a low level integration of the unified trade areas and warrant careful comparative analysis. The model extension in terms of the bilateral agreements is used as it is an avenue that lacks analysis (Baier et al., 2018).

The gravity model is a robust econometric analysis that portrays international trade scenario accurately (Baier et al., 2018). The augmented gravity equation with the incorporation of gravity variables (i.e. GDP of trading partners taken as proxy for masses and bilateral distance of capital cities taken as proxy for distance), trade agreements (regional and bilateral), inflation rates, exchange rates, and additional social indicators (common border, ethnicity and language) demonstrate predictive properties that support the concept of “economic geography” thus producing analytical results that highlight international trade flows and their welfare impacts on the integration processes of SAARC.

## 2. REVIEW OF THE LITERATURE

### Evolution of Trade

Globalization and efforts to integrate regions has resulted in a “spaghetti bowl” of regional trade agreements. These regional integrations, however, fail to demonstrate the same level of success. The seven regional groups depending upon different economic structures and level of development vary in the level of effective integration. It is evident from past researches that despite enhanced integration that results from regional trade agreements, the level of welfare attained by developed countries is much more when compared to the developing regions.

The regions comprising developed economies attain higher levels of welfare gain when compared to the developing and under developed regions. High income regions like the European Union gain more by

engagement in trade activities. The edge attained by having commonality of factors like common language, common ethnicity and common border under the same regional agreement is also evident from past studies. In contrast the struggles of the developing nations in SAARC to attain complete integration are prevalent despite having common language, ethnicity and borders.

Looking at the broader context, the General Agreement on Tariffs and Trade (GATT) and later WTO was founded on non-discrimination amongst nations and embodies unconditional most-favoured nation treatment to developed member states. Yet, since the day they were formed the principle seems to be under recurring threat; especially in the context of the “three waves of discriminatory trade policies”. The first wave of these policies surfaced in the 1950s with the economic integration of six Western European countries that later formed a Customs Union in the 1960s. The first wave of regionalism, lead to a lot of regional agreements (RTAs). Seven other European nations formed EFTA while the earlier Custom Union members exploited the RTAs as a substitute for foreign policy instrument. The majority of EFTA member states eventually merged into EU. The trend also started to surface in developing countries in Africa, Latin America and the Caribbean and was modeled on the original EU RTAs. As a result GATT in 1971 extended the Generalized System of Preferences (GSP) and legitimized tariff schemes for developing countries. As a consequence the RTAs proved to be a feeble instrument for promoting trade as whenever the volume of export by these developing economies raised it was countered by the unilateral tariff implementation by the world economic powers of the time.

The emergence of regionalism was a trend that was viewed as a vital part of global integration. The United States of America gave rise to the second wave of regionalism in the 1980’s with its deviation from GATTs non-discriminatory principle that later lead to the North American Free Trade agreement (NAFTA) formed in 1993. Over the past few decades, there has been a steady rise in the number of regional trade agreements (RTAs) in different parts of the world (Jambor. A et al, 2020). By the end of the twentieth century, the WTO emerged as a body of world trade laws with the aim to “enforce the non-discrimination principle, strengthened dispute resolution mechanics and lower tariffs”.

Despite this a third wave of regionalism started with the advent of the twenty first century and is characterized for its discriminatory trade policies. The 1997 economic downturn experienced by Asia led them to believe that they were let down by the global financial institutions and as a reaction measure were started by East Asia especially China, the emerging economic power. The Asian nations focused on regional deepening. It is mostly observed that trade agreements among big and small countries reflect political motivation and the examples where we compare the US with Asian nations, A trade conflict between two large countries could benefit the larger one while hurting the smaller one. (Bouet.A and Laborde.D, 2018)

### **South Asian Association for Regional Co operation**

South Asian Association for Regional Co-operation (SAARC) is a geopolitical and intergovernmental union of nations in South Asia. It comprises nation states of Bangladesh, India, Pakistan, Sri Lanka, Bhutan, Nepal, Maldives and Afghanistan. It covers three per cent of the global area and one fifth of the global population. SAARC was founded in Dhaka on 8<sup>th</sup> December 1985 with its secretariat in Nepal. During the late 1970s seven inner nations<sup>4</sup>decided to create a trade block to encourage an environment of trust, co-operation and understanding. However, this effort was viewed skeptically by India that feared the nations might consolidate on issues and oppose it and Pakistan that was fearful that it might be India’s plot to force dominance over its sovereignty and to promote its product sales in the region at the cost of security. After a series of persuasion

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<sup>4</sup> The seven inner nations of SAARCH include Pakistan, India, Bangladesh, Nepal, Maldives, Bhutan and Sri Lanka

and consultations and in an effort to promote regional co-operation and economic integration South Asian Free Trade Agreement (SAFTA) finally got launched in 2006.

SAFTA like EU was a huge step for the South Asian nations and was intended to transition to Custom Union. But due to different dynamics the transition still remains a dream. According to an estimate of the Asian Development Bank sixty eight per cent of the potential for intra-regional trade still remains unrealized. The region comprises lower middle-income countries with the exception of Nepal that belongs to low-income country classification. Partner nations and their diverse economic backgrounds pose difficulty in deciding on the correct mix of policies to move towards a growth-oriented path; a task that was easily streamline in European and American regions where trade integration was considered an engine of growth.

Adegboye. F.B et al (2020) study concluded that the region's economic progress was not significantly impacted by trade liberalisation. It was found that the member nations, despite their efforts to liberalise, were not at all prepared for the technicalities of liberalisation. This revealed the cause for the region's meagre and unreported trade.

Until the turn of the twenty first century trade amongst SAARC nations was negligible compared to other regional blocs and was mostly attributed to the lack of exploring trade opportunities by the partner nations. Modelling the gravity equation explicitly with tariffs allows the estimates to be interpreted as trade elasticities. This enables a direct comparison of the trade effect caused by NTBs and by tariffs (Kinzius. L et al., 2019) Examination of the trade scenario and the unsuccessful intra-regional integration was also attributed to opponents of trade liberalization that propagate that the trade agreements “divert non-member least cost suppliers” thus causing welfare reduction. Samreen. S (2019) identify the SAARC members as only “moderately” as natural trading partners and an integration effort that requires a lot of care.

Once the SAARC Preferential Trading Agreement (SAPTA) was established in the mid-1990s. The South Asian economies mainly went after protectionist trade policies to shield the domestic industries from foreign competition during their initial phases of development (Mendali.G, 2019)

The overall trade growth amongst the countries seems to favour India as it enhanced its trade potential in Asian region but the SAFTA region trade enhancements still present a bleak picture (Dinda, 2018; Hossain, 2019, Taguchi et al., 2019).

To summarize we can state that the world trade scenario is integrating at a phenomenal speed and the analysis of the process and its consequent academic, practical and policy implications deserve attention. While the conventional trade models by Ricardo, Hecksher Ohlin and Ricardo-Viner etc. show contradiction to the behaviour witnessed in the real world the gravity model (with its strong micro foundation, empirical foundation and predictive capability) surfaces as an efficient and effective tool to better understand the trade dynamics while addressing the policy management aspect (Grossman et al., 2017). Regional and global trade integration is not only inevitable, it also forms the basis for global harmony and a well thought out strategy devised with the help of the gravity equation would be instrumental in deciding a future course of action that favours global trade integration and management.

### 3. EMPIRICAL METHODOLOGY AND DATA DESCRIPTION

International trade is an integral part of global development. It is a crucial contributor to innovation, product development and enables countries to earn foreign exchange, thus leading participants to sustain economic development. For the past half century, the gravity model has proved to be a robust and empirically powerful tool for the evaluation of trade flows (Baier et al., 2018). This robustness makes the gravity model most appropriate for the evaluation of regional trade. The application of the above-mentioned model has proved instrumental because of its explanatory and predictive properties in the context of Regional Trade Agreements

(RTA). The Newtonian base of the gravity equation includes size, proximity of trade partners as well as the trade prohibiting factors as “iceberg costs”. The gravity model has a multiplicative form and is represented as follows:

$$X_{ij} = GS_i M_j \varphi_{ij} \tag{1}$$

where  $X_{ij}$  is the monetary value of exports from country  $i$  to  $j$ ,  $M_j$  denotes all importer-specific factors, making total importer’s demand (measured in terms of importing country’s GDP) and  $S_i$  comprises exporter-specific factors (such as the exporter’s GDP) and it represents the total amount exporters are willing to supply.  $G$  stands for level of world liberalization. Finally,  $\varphi_{ij}$  represents the ease of exporter  $i$  to access of market  $j$ . Full explanation put forward through development of gravity equation modelling surpasses all other estimation techniques (Head & Mayer, 2014).

In line with the theoretical and empirical underpinnings this research examines total trade as well as its important components of exports and imports taken as dependent variable. These are denoted as  $T_{ijt}$ ,  $EXP_{ijt}$  and  $IMP_{ijt}$  and represents trade, exports and imports (respectively) directed from country  $i$  to country  $j$  over the time period  $t$ . The functional form of the gravity equation for economic implications is simplified by transforming the “Newtonian Gravity Model” in to a growth model and thus empirical transformation of all three augmented equations is represented by equation 2,3 and 4 below. Where  $GDP_i$  is the originating country’s GDP and  $GDP_j$  is the destination country’s GDP and taken as a proxies for masses respectively. The  $BilDist_{ij}$  is the aerial distance between the partner’s capital cities. The composite error term  $\epsilon_{ijt}$  discusses the effect of unexplained factors across countries over a period of time.

Since the research is focussed on bilateral total trade, exports and imports there are numerous tariff and non-tariff barriers that affect the dynamics directly. As comprehensive work has been put in to the tariff barriers evaluation, there is a definite need to focus on the non-tariff aspects that enhance/retard trade (Baier et al., 2018). These factors include but are not limited to commonality of language, religious practices, common ethnicities as well as common borders. Another trade facilitating variable that may play a pivotal role can be the presence of a regional trade agreement amongst the partner nations.

Incorporation of all these factors to the basic trade equation enhances the explanatory power of the basic equation and therefore an extension in the basic equation is made and the augmented equation 2, 3 and 4 are presented below:

$$\text{Log}T_{ijt} = \alpha + \beta_1 \text{Log}GDP_i + \beta_2 \text{Log}GDP_j + \beta_3 \text{Log}BilDist_{ij} + \beta_4 \text{LANG}_{ij} + \beta_5 \text{BRD}_{ij} + \beta_6 \text{ETHN}_{ij} + \beta_7 \text{RTA}_{ij} + \epsilon_{ijt} \tag{2}$$

$$\text{Log}EXP_{ijt} = \alpha + \beta_1 \text{Log}GDP_i + \beta_2 \text{Log}GDP_j + \beta_3 \text{Log}BilDist_{ij} + \beta_4 \text{Log}INF_i + \beta_5 \text{Log}INF_j + \beta_6 \text{Log}EXCH_i + \beta_7 \text{RTA}_{ij} + \beta_8 \text{LANG}_{ij} + \beta_9 \text{BRD}_{ij} + \beta_{10} \text{ETHN}_{ij} + \beta_{11} \text{Log}TT_j/GDP_j + \epsilon_{ijt} \tag{3}$$

$$\text{Log}IMP_{ijt} = \alpha + \beta_1 \text{Log}GDP_i + \beta_2 \text{Log}GDP_j + \beta_3 \text{Log}BilDist_{ij} + \beta_4 \text{Log}INF_i + \beta_5 \text{Log}INF_j + \beta_6 \text{Log}EXCH_i + \beta_7 \text{LANG}_{ij} + \beta_8 \text{BRD}_{ij} + \beta_9 \text{ETHN}_{ij} + \beta_{10} \text{RTA}_{ij} + \beta_{11} \text{Log}TT_j/GDP_j + \epsilon_{ijt} \tag{4}$$

The above equations represents augmented version that in addition to the GDPs of the two countries and bilateral distances includes social indicators of  $\text{LANG}_{ij}$  that is indicative of presence of common language or

the presence ease of official/ contractual communication for execution of trade deals,  $BRD_{ij}$  is the presence of a common border shared by the two nations under study,  $ETHN_{ij}$  accounts for the presence of common ethnic and religious factors (i.e. similarity of more than ten per cent in terms of religion practiced in the trade partners). Another important variable added to the trade equation is  $RTA_{ij}$  the presence of a common RTA amongst the trading countries. These independent variables potentially enhance the explanatory power of the earlier trade equation and promise a better formulation of the basic gravity model for trade calculations and welfare predictions.

However, since dependant variable of total trade explains aggregated effect of trade in terms of export and import there is need to look at the export and import component separately in equations 3 and 4. For in-depth knowledge of export and import dynamics special attention needs to be on the individual export and import drivers of the economies under study.

Exports are believed to boost economic growth and create jobs in the exporting economy. Higher exports promote higher trade balance and enhanced foreign exchange earnings. These equations surfaces as the aspect that takes export/import from country  $i$  to country  $j$  as the dependant variable with the conventional gravity model independent variables of respective masses of the countries the proxy for which is GDP, and distance between the two countries. The transformation of the basic trade equation to the export/import equation has come about by inclusion of additional independent variables.

Inflation rates in the exporting and importing country have an impact on the export volumes. Due to the influential nature of inflation and its deterministic properties that affect exports from country  $i$  to country  $j$  the variables  $INF_i$  and  $INF_j$  have been incorporated. An important factor that affects the export and import volumes besides domestic price changes is the exchange rate fluctuations that take place. Exports show high volatility in response to the exchange rate fluctuations therefore necessitating the inclusion of  $EXCH_i$  that accounts for the exchange rates of the exporting countries over the period of study. The models also incorporate a generated variable in addition to conventional macroeconomic variables. The additional variable  $TT_j/GDP_j$  i.e. the total trade of the destination in ratio to the gross domestic product (Frankel & Rose 2002). This ratio is important as it reflects the importing country's affinity to trade.

These models fulfil the requirement to see separate effect of total bilateral exports and imports taking place between two partner nations and can be applied for estimation in the panel data form in order to conduct a regional level study. Panel data gained significant acceptance in the study of economic indicators as it surfaced as a process that incorporates both time series and cross-sectional data that helps in arriving at meaningful conclusions about the data (Baltagi et al., 2017). According to Baltagi (2007), panel data renders "more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency". It gives the researcher the ability to go through repeated cross sections of observations and measures the effects of various economic phenomenons that cannot be as suitably explained by the pure analysis of time series or cross-sectional data sets. In order to address estimation issues/problems during analysis, this study used *mean corrected or de-meanned* values to eliminate the heterogeneity. In line with the method explained in this research a mean value for all variables is taken and it is subtracted from the observed values, as a result the regression run on this mean corrected values removes the heterogeneity problem faced by the cross comparison of different regions/countries without losing any degrees of freedom as is the case when dummy variables are introduced. The within group estimates, theoretically speaking, promise consistent estimates of the parameters/slope co-efficient. In order to examine international trade (various trade patterns) across regions, it is appropriate to use panel data as it helps to incorporate cross-sectional observations of the trading partners over time. Hence, making panel data analysis relevant and efficient way to study bilateral trade in the context of gravity model.

The panel data analysis hinges on deciding which method to adopt i.e. the choice between the fixed effects and random effects models. For the decision purpose Hausman Test was conducted and found to be significant and thus, Fixed Effects model was found most appropriate and was used to analyse the panel data set from 1985-2015 (data sources included International Financial Statistics (IFS), Penn World Tables (PWT), COMTRADE database and World Development Indicators (WDI)).

A core issue for various trade analysts is to determine the extent of enhancement in welfare due to existing trade agreements. Thus, the indeterminate empirical issue of welfare is a focal point for researchers. In this context there is a need to consolidate regions and important factors overlooked in the past and evaluate the advantages that can be attained through the overall globalization process (Head & Mayer, 2014; Baier et al., 2018). In this regard, South Asian Association for Regional Cooperation (SAARC) has been selected. It is also evident that different trade models have their own significance and economic implications. But those models are not appropriate to analyze and estimate identified gap under this analysis. Therefore, there is a need to utilize augmented gravity model to empirically investigate the effectiveness of various social and trade related factors among trading partners within the regions. Absence of thorough examination of factors that impact regional integration process pose a hindrance to better policy formulation. Thus, analysis of globalization and economic development in the context of regional and sub-regional RTAs, social indicators (like common language, common ethnicity and common borders) and trade indicators in a systematic way across SAARC is of utmost importance. Therefore, there is need to address the following research questions:

1. To what extent, size of economy and geographical distances affect the total trade in SAARC?
2. To what extent, common border, ethnicity, regional trade agreement and common language affect the total trade in the presence of economy size and geographical distances for SAARC?
3. To what extent, common border, ethnicity, regional trade agreement and common language affect the total exports in the presence of size of economy, geographical distances and other relevant control variables for SAARC?
4. To what extent, common border, ethnicity, regional trade agreement and common language affect the total imports in the presence of size of economy and geographical distances and other relevant control variables for SAARC?

#### 4. RESULTS AND DISCUSSION

Based on the abovementioned methodology the entire analysis, for  $i^{\text{th}}$  cross sections with  $t^{\text{th}}$  time period, the dependent variables are total trade, total export and total imports denoted by  $TT_{ijt}$ ,  $TEXP_{ijt}$  and  $TIMP_{ijt}$  respectively. The explanatory variables are log of gross domestic products of the two partner countries denoted by  $GDP_i$  (GDP of source country) and  $GDP_j$  (GDP of destination country). The other independent variable is the distance between the capitals of the trading partners. Since the coefficient of Hausman test remains significant at conventional standards, therefore during regression analysis, fixed effects method has been used throughout regression analysis. In addition to that the Durbin Watson Test was also found to be in the range of 1.8 to 2.3 thus pointing towards absence of autocorrelation. Based on the mentioned criteria Table 1 shows empirical results for SAARC countries regarding relationship between total trade, economy size (being measured in terms of respective GDP) and distance.



**Table 1. Gravitational Equation (SAARC).**

**Dependent Variable:** Total Trade

Variable	Coefficient	t-statistic
Constant	18.08	4.33**
GDP1	0.74	2.50**
GDP2	0.06	4.12**
Distance	-0.52	-3.20**
R Square: 0.45		
Adj. R Square: 0.44		
F-Statistic: 8.27 (0.02)		
Hausman Statistic: 8.52 (0.001)		
** show 5 per cent and 10 per cent level of significance respectively.		

The empirical results reveal that if masses or GDP of trading countries change over a period of time, then their trade increases at the rate of 74 per cent and 6 per cent respectively. The role of distance can enhance their trade up to 52 per cent over a period of time (Sultan & Munir, 2015).

Trade is also affected by a social, cultural and trade related factors (Baier et al., 2018), which include ethnicity, language, border and regional trade agreement. Table 2 shows the results when we include these variables for intra-regional SAARC trade.

**Table 2. Total Trade and Other Social and Trade Related Factors.**

**Dependent Variable:** Total Trade

Variable	Coefficient	t-statistic
Constant	1.78	(0.48)
GDP1	-0.05	(-0.17)
GDP2	2.09	(5.35)**
Distance	-0.59	(-3.41)**
Language	0.89	(2.05)**
Border	3.12	(10.37)**
Ethnicity	18.08	(4.25)**
RTA	1.81	(5.28)**
R Square:	0.51	
Adjusted R Square:	0.50	
F. Statistic: 48.04 (0.00)		
** indicates 5 per cent level of significance.		
( ) shows t-statistic.		

For the selected countries over a given period of time, it is evident that due to inclusion of trade and social factors, except for gross domestic product of source country, the effect of indicators on trade has changed significantly. Contrary to previous findings, most factors have significant effect on trade. The result shows that if economy size of destination increases then total trade increases by 2.09 per cent, suggesting that destination economies get benefits from their trade either through improvement in available products or through improvement in their production processes. In this way their trade volume increase due to increase in their overall production over a period of time and trade remains beneficial to increase the welfare of their residents. Distance has significant effect on trade, which remains negative and significant at conventional standard. However, within region, if, distance changes then trade is affected at the rate of 59 per cent, which significant at 5 per cent level of significance, similar result were also found by Hussain (2017).

The literature also presents evidence that trade is by indicators such as language, border, ethnicity and regional trade agreement (RTA) (Baier et al., 2018). The result shows that the effectiveness of language on trade is positive and significant; suggesting that within region variations of languages to some extent plays an important role in trade promotion.

The result shows that due to common border trade increases, over a period of time, at the rate of 3.12, which is positive and significantly affects trade within regions, also found by Kathuria, S. (2018). Being an integral component of trade, regional trade agreement (RTA) – trade related factor in included and estimated and it concludes that RTA has positive and significant effect on trade.

Export is one of the determinants of growth and development both in developed and developing countries. Over a period of time, overall production may increase in the source country and the living standard of the residents of destination country increases through the provision of better quality products. Moreover, exports also improve trade balances by creating more foreign reserves. Therefore, being an important factor of trade, in the following section, we are treating exports as dependent variable and want to examine how exports affect various factors such as, economy size, distances, inflation, exchange rate, language, ethnicity, border and regional trade agreement. In this context, other than economy size and distance, inflation rate of both source and destination countries, exchange rate of source country and total trade to GDP of source country have been considered to examine their effect on total exports.

Table 3 depicts the empirical results regarding the relationship between total exports and trade related factors. Most variables are found to be statistically significant at conventional standards except RTA and inflation. However, due to cross sectional differences inflation of source countries has insignificant effect on total exports within regions of SAARC countries.

Besides, it has been observed economy sizes are also playing their roles for increasing of total exports of respective countries, which is also significant at conventional standard. Therefore, it is suggested that if masses are changing, respective countries exports are increasing at the rate of 23 per cent and 36 per cent respectively. Further, suggested that due to increase in exports, overall production level may increases and exports are beneficial for the destinations over a period of time. In order to examine the effect of inflation on exports, inflation variable is included in regression analysis, whose effect remains insignificant over a period of time. The results are also similar to Hussain (2017) and Dar et al., (2018).

Exchange rate is included in the regression equation, which shows that within region, due to variation in exchange rate, exports are increasing at the rate of 1.15 and this effect is also significant at 5 per cent level of significance. In order to examine the effect of openness on exports, a variable total trade to GDP is measured and included in regression equation. The results regarding trade openness reveal that when economies open their exports increase at the rate of 90 per cent and this effect is significant at 5 per cent level. The results show that except for inflation, all other factors are significantly affect the exports. Further, also evident that

effect of source country’s GDP and its inflation is statistically significant at 5 per cent level of significance. Moreover, it has also been observed that exchange rate and trade openness both have positive and significant effect on total exports.

**Table 3. Total Exports and Other Social and Trade Related Factors.**

**Dependent Variable:** Total Exports

Variable	Coefficient	t-statistic
Constant	-23.72	(-1.45)
GDP1	0.23	(3.03)**
GDP2	0.36	(4.34)**
Distance	-4.25	(-1.93)**
INF1	-0.001	(-0.04)
INF2	0.09	(1.72)**
Exchange Rate1	1.15	(14.14)**
Total Trade2/GDP2	0.90	(6.82)**
Language	0.60	(3.56)**
Border	4.23	(2.40)**
Ethnicity	17.05	(15.46)**
RTA	20.00	(15.28)
R Square: 0.65		
Adjusted R Square: 0.64		
F. Statistic: 95.25 (0.00)		
** indicates 5 per cent level of significance.		
( ) shows t-statistic.		

It is evident that trade through border could be possible among trading partners, if these countries have common border among them. To see role of border in trade, empirical result shows that border can have positive and significant effect to develop exports among trading partners.

Trade economists are considering common language as an integral determinant of bilateral trade. The general measure of common language is a binary variable, which is based on one or more official languages, being developed among trading partners and results are similar to Hussain, (2017). It is observed that due to common language among trading partners within a region, exports increase at the rate of 6 per cent.

The analysis reveals that effect of ethnicity on exports remains positive and significant. Therefore, when ethnicity changes across countries within region, then exports increase at the rate of 17.05 and this effect is highly significant at 5 per cent of significance. These finding are similar to Hussain (2017). The empirical result reveals that in the presence of RTA, all variables are significantly affecting the total exports and their

effectiveness remains meaningful at conventional standard. Finally, it is observed that by the inclusion of RTA, exports are increasing at the rate of 20 per cent. The result also reveals that within region across countries regional trade agreement is positively and significantly affecting the total exports.

Like exports, imports are important for business activities both in developed and developing countries. Imports help to increase the living standard of the individuals in these countries. These results are similar to Dar et al., (2018). The study here examines total imports in the context of factors reflected in equation 4 above. Effectiveness of each factor has been discussed in the light of previous evidences. Table 4 shows empirical results regarding relationship between total imports and various trade related factors.

**Table 4: Total Imports And Other Trade Related Factors (Saarc)**

**Dependent Variable:** Total Imports

Variable	Coefficient	t-statistic
Constant	18.40	(18.21)**
GDP1	0.53	(3.60)**
GDP2	0.46	(3.14)**
Distance	-1.03	(-8.06)**
INF1	0.01	(0.08)
INF2	-0.09	(-0.79)
Exchange Rate1	1.54	(12.10)**
Total Trade2/GDP2	0.01	(0.02)
Language	0.59	(3.56)
Border	1.52	(10.20)**
Ethnicity	12.15	(18.04)**
RTA	0.15	(0.65)
R Square: 0.35		
Adjusted R Square: 0.34		
F. Statistic: 28.66 (0.00)		
** indicates 5 per cent level of significance.		
( ) shows t-statistic.		

The results reveal that effectiveness of economy size of both source and destination have significant effect on imports, suggesting that destination country’s import level will increase due to growth in source country. The empirical results also indicate that when exchange rate fluctuates then imports are affected at the rate of 1.54 per cent, which is significant at 5 per cent level of significance. The results are similar to Iqbal et al., (2014).

However, effectiveness of trade openness (total trade to GDP) is found to be insignificant. Finally, it is also observed that effect of common border is also positive and highly significant at 5 per cent level of significance.

Further, suggesting that in this scenario, import through common border is beneficial for trading partners within region. There is evidence that ethnicity helps to increase imports from source countries, suggesting that due to cultural variations, individuals prefer to purchase imported products without harming their purchasing power parity. The coefficient associated with ethnicity predicts that due to cultural differences; imports are increasing; similar findings were also suggested by Sultan & Munir, (2015).

As stated above, the regional trade agreements (RTA) are essential for regional trade development among trading partners, however in the context of imports it is insignificant. Thus, pointing out that the imports are influenced by common borders and ethnicity and these tools ought to be employed when formulating policy tool to boost imports in SAARC.

## 5. CONCLUSION AND RECOMMENDATIONS

This first time study for the 1985-2015 time regime (commensurate with the beginning of the regionalism phenomenon) for SAARC is based on selection of those countries that are responsible for approximately seventy five per cent of the total merchandise trade. The countries include Bangladesh, India, Pakistan and Sri Lanka. This research utilizes the extended gravity model for estimation and findings are based on empirical investigation of the extended model for trade, exports and imports. Additionally, it incorporates trade and cultural variables within regions and contributes to methodology by presenting models that can be tested in other regions of the world. This research is a contribution to the existing body of literature as no prior work on regional level has been reported till date on the regions classified by the World Bank. However, this study examines one out of seven regions and will form the basis for globalization and regional integration studies in the future.

Throughout the analysis, total trade, total exports and total imports are used as dependent variables. On the other hand, GDP, geographical distance, inflation, exchange rate, trade openness and social and trade related factors i.e. common language, common border, ethnicity and regional trade agreement (RTA) are examined. Empirical results show that intra SAARC transactions are impacted by economy size and distance. Further specific examination of factors on exports and imports within SAARC show that, economy sizes of source and destinations, geographical distance, existing inflation rate and exchange rate and trade openness enhance exports/imports. For exports in particular effectiveness of common language, common border, ethnicity and regional trade agreement was established while level of imports has been found to be impacted by only two factors i.e. common border and ethnicity.

In conclusion, depending upon the structure of concerned economies appropriate policy mechanism may be developed to enhance their trade, exports and imports within region over a period of time. Additionally, it is suggested that among these regions, under certain trade agreements, total trade, total exports and total imports can be increased for their growth and developmental processes.

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