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AN EMPIRICAL INVESTIGATION OF PAKISTAN'S BILATERAL TRADE WITH INDIA AND SRI LANKA: A GRAVITY MODEL APPROACH

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ABSTRACT

This paper empirically investigates the effect of various trade-related macroeconomic variables, regional trade agreements and common border effects on overall trade of Pakistan, India, and Sri Lanka. The study utilizes trade data for the period of 1985-2015 to assess the bilateral trade aspects through the use of extended gravity equation. The empirical findings are consistent with the gravity model estimates conducted by earlier studies with mild deviances experienced due to the sensitive items lists and geo-political dynamics prevailing in the region. Overall, the results reflect that the mass of the trading partner, distances, existence of regional trade agreements and common borders are significant while analyzing trade flows among trading partners. These findings are of utmost importance in the context of trade route initiatives by Asia in general, and Pakistan's newly appointed political leadership in particular.

Keywords: *International Trade; South Asian Free Trade Agreement; Gravity Models.*

INTRODUCTION

International trade is an integral part of growth and development, both in developed and developing countries. Global integration was initiated with the formation of the General Agreement on Tariffs and Trade (1948) and then the World Trade Organization (1995). International trade trends gained momentum as nations realized the gains from globalization. Consequently, regional trade integration has also gained impetus in many regions, particularly in the South Asian Association for Regional Cooperation (SAARC) members with the signing of South Asian Preferential Trade Agreement (SAPTA) in 1995. This resulted in a formal regional trade liberalization, which came into force in 2006 with the signing of the South Asian Free Trade Agreement (SAFTA). The SAARC region comprises seven lower-middle-income groups (Pakistan, India, Sri

Lanka, Bangladesh, Bhutan, Maldives and Afghanistan) and one low-income country (Nepal).

Trade is considered the "engine for growth" while the Asian region has been criticized for a lack of an implementable and growth-oriented policy mix (Bhattarai & Kucheryavyy, 2018; Abhyaratne, & Varma, 2018). In today's global scenario, regional integration is inevitable and a country that lags in the practical implementation of effective policy tools will not be able to stand at par with its competitors. Abundant literature exists on trade flow mechanisms, trade volumes and trade agreements but there appears a gap when it comes to devising an implementable policy.

In order to bridge the gap, this study focuses on determining various factors that affect the overall trade performance and how they can be used to the advantage of trading partners by maximizing trade benefits. Traditional models of the trade by Adam Smith, Ricardo, Heckscher–Ohlin, Krugman are incapable of completely explaining the complex trade mechanism faced today. Keeping the aspect of measuring the extent of welfare enhancement, forecasting of future trade trends and close study of nuances that differentiate a successful trade model from a non-successful one is what has convinced researchers to opt for the gravity model that has empirically proved to be accurate in explaining the welfare effects as well as prediction of future trade behaviours (Baier & Bergstrand, 2001; Xuegang, 2008; Kumar & Ahmed, 2015).

Initial trade studies focussed on goods and services traded across borders and later trends reflect a shift in the analysis of underlying factors that determine trade volumes and welfare implications of these transactions. Variables like population, national income, hard and soft infrastructure as well as dummy variables like common borders, common language, ethnicity, presence of regional trade agreements (RTA) and lists of sensitive items became the focus of attention. This research attempts to contribute to the existing empirical literature by addressing the following questions: What is the trade growth relationship of the selected economies? What impact do common borders, regional trade agreements, language and ethnicity have on the traded volumes? What steps should be taken to enhance the overall welfare of the trading partners in the context understudy?

The next section II discusses relevant literature review on the subject

matter and importance of trade in the selected regions. Section III elaborates empirical methodology being used in the analysis followed by the data description and variables. Section IV discusses empirical results and discussions followed by the conclusion and recommendations in the last section.

LITERATURE REVIEW

International trade has existed throughout history and its remnants can be seen in the form of Silk Route, Amber Road, Salt Roads and even the Atlantic slave trade. During the past centuries, international trade has played a vital role in the economy, society, and politics (Frankopan, 2017). The role of trade was further enhanced as trading partners experienced positive impacts on their economy like getting cheaper goods, profitable disposal of surplus production, production specialization, achieving economies of scale and profits from the expanded market. While economies expanded as a result of increased trade a multitude of barriers were built up by the trading partners in the form of a direct tariff as well as non-tariff barriers (for example import/export licences, quotas, subsidies, embargoes and currency devaluations).

With the advent of the twenty-first century, a wave of regional integration surfaced. The depression of 1997 experienced in Asia resulted in uncertainty and mistrust in the global financial system. As a reaction developing Asian countries started focusing on possible countermeasures to secure themselves. The ideology focused on regional deepening was developed and that resulted in the signing of many regional trade agreements. The belief that trade agreements among developed and underdeveloped regions are based on political motivations and full benefits from trade are rarely achieved pushed China (an emerging production giant) to set a new standard for the Asian economies (Schiff & Winters, 2003; Gaulier, Lemoine, & Deniz, 2007). Meanwhile, the focus of the first world countries shifted towards Asian economies for cheaper production and service provision.

In the context of the shifting global scenario, the SAARC region also felt the need to re-strategize and initiate regional integration, including a step towards opening markets for trade thru SAFTA. SAARC region has a history of colonial rule and political enmity dating back to the time these countries achieved independence. As a result, instead of embarking on a journey of trade deepening that was witnessed in the South East Asian

region, SAARC countries issued a list of sensitive items that focussed on limitations that were imposed on regional partners. These lists of restricted/sensitive items resulted in welfare deterioration as they posed embargoes (that are believed to be the worst kind of trade barriers). Therefore, there was a reversal of the welfare effect as was the initial intention. For this reason, there is a need to re-evaluate the trade process to get the SAARC countries to get a sound footing in the world scenario. The research literature emphasizes that Pakistan also needs to position itself in the global arena. Pakistan, with its strategic importance, especially in the context of CPEC and the new political regime needs to take a step back and decide steps to be taken in the near future. In order to quantify the trade potential of Pakistan, thirty-eight countries were examined by Sultan and Munir (2015). Their study specifically used the gravity model that was useful when analysing trade volume between the two countries based on market size and geographical distance and found the results to be commensurate with earlier findings.

Although most studies conducted endorse the initial assumptions of the gravity model, there appear some mixed results when considering different regional and bilateral trade agreements due to the conditions attached by the trading partners in the form of negative item lists, rule of origin, tariff reduction, trade liberalization, infrastructure development, lack of commitment to the free trade treaties and at times constrained political relations of the partner countries (for instance Frankel, 1999; Weerakoon & Thennakoon, 2008; Gaulier et al., 2007; Iwanow, & Kirkpatrick, 2007).

RESEARCH METHODOLOGY

In the trade literature, the gravity model approach is the most favourable due to its robustness, predictive mechanism, and limited use of variables (Bergstrand, 1985; Baldwin, 1984; Filippini & Molini, 2003). The gravity approach draws its strength from its application in trade flows representation, particularly when studied in combination with the RTA effect. The model is based on the Newtonian notion of gravity that emphasises that trade between partners is affected by their mass and proximity. Here the proxy for mass can be either taken as GDP or population size while distance is represented by physical remoteness (Filippini & Molini, 2003; Egger, 2008). Although earlier studies examined the total trade flows or particular product flows between the trading partners while recent studies focus on the impact of RTAs and resulting trade creation/ diversion experienced (Filippini & Molini, 2003; Baier &

Bergstrand, 2007), policy implications and common border effects (Nitsch, 2000), common currency (Bun & Klaassen, 2007; Buch, & Piazolo, 2001), transportation costs (Martínez-Zarzoso, & Suárez-Burguet, 2005; Baltagi, Egger, & Pfaffermayr, 2008) as well as the north-north and south-south trade impacts along with distances. The general form of the model introduced by Tinbergen (1963) takes the following form:

$$Xij = GSi\ Mj\ \varphi ij \qquad (1)$$

In the above model, Xij is the monetary value of goods exported from country i to j, Mj denotes all importer-specific factors, making total importer's demand (being measured in terms of importing country's gross domestic product) and Si comprises exporter-specific factors (such as the exporter's gross domestic product) and it represents the total amount exporters are willing to supply. G stands for the level of world liberalization. Finally, φij represents the ease of exporter i to access of market j.

This study uses the augmented version of the basic gravity model in order to look at a new perspective of trade relations between the three major contenders of SAARC for the period of 1985-2015. Although the basic model relies on the mass and distances here the augmented (log linearized) gravity equation used is:

$$log(TTit) = \alpha_0 + \alpha_1 log(GDPit) + \alpha_2 log(GDPjt) + \alpha_3 log(PCGDPijt) + \alpha_4 log(TT/GDPit) + \alpha_5 log(TT/GDPjt) + \alpha_6 log(TPCXPit) + \alpha_7 (RTAij) + \alpha_8 (BRDij) + \alpha_9 (ETHij) + \alpha_{10} (LNGij) + Uijt \qquad (2)$$

Where TTit is the total trade volume of country i, GDPi is the gross domestic product of country i, GDPj is gross domestic product of country j, PCGDPi is the per capita gross domestic product of country i, TT/GDPi is the total trade to GDP ratio of country i, TT/GDPj is the total trade to GDP ratio of country j, TPCXPi is the transportation cost of exports of country i, RTAij is the presence of regional trade agreement between country i and j that is introduced in the form of a dummy variable dummy variable, BRDij is the border variable that is given the value of one in case of presence of a common border (like that of Pakistan and India in this case), ETHij is the dummy for ethnicity that reflects the commonality of at least five per cent of the religious or ethnic minority's presence between country i and j and LNGij is the common language between country i and j, a factor that is also reflected as a dummy variable.

The time-series data set includes Pakistan, India, and Sri Lanka the three prominent countries in the SAARC region covering the period from 1985 to 2015. The data collected for country-wise analysis has been taken from the World Bank (WDI) and IMF (IFS). For each country data for total trade is taken as dependent variables while the independent variables include GDP, GDP per capita, inflation, exchange rate and distance that follows empirical literature of the gravity model of trade. While dummy variables are used to account for the existence of regional trade agreements, common borders, ethnicity, and common language effects. For each country, three separate models' equations have been taken where the bilateral trade flows have been analysed individually.

RESULTS AND DISCUSSIONS

The time-series data used to estimate twelve empirical models in accordance with the equation 2 mentioned above. The complete model results represent the findings of the effects of the studied variables on the bilateral trade and the four directional analysis of (a) Pakistan to India (b) India to Pakistan (c) Pakistan to Sri Lanka and (d) Sri Lanka to Pakistan.

a) Pakistan to India: The overall model describing the total trade performance from Pakistan to its partner destination India is found to be efficient in explaining trade mechanism with the value of R^2 equal to 0.82. The relative contribution of each independent variable used in the analysis adequately determines total trade between Pakistan and India. The regression coefficient for GDP of the two partner countries is found to significantly affect overall trade with the co-efficient equal to 0.67 and -0.08 respectively, meaning thereby that a one per cent increase in GDP of Pakistan will positively impact the total trade by 0.67 per cent while the increase in GDP of India will have a negative impact on the total trade of Pakistan. A major point to be noted here is that India and Pakistan greatly differ in mass and therefore the deviation from the traditional Newtonian model. Similarly, the proximity factor was found to have a negative yet significant influence on the total trade flows that are commensurate with theory and earlier findings. The per capita GDP and total trade to GDP ratio of Pakistan are found to have a positive impact on total trade volume. The dummy variables for common borders and the presence of a regional trade agreement that is SAFTA in this instance are also found to have a significant impact and encourage trade flows amongst the partner nations.

b) India to Pakistan: Observing the empirical evidence of partner relationship from India's perspective, it seems that the same set of variables show a higher level of explanatory power. The overall model is R^2 equal to 0.94 and clearly indicates that the per capita GDP of India is a significant contributing factor with a coefficient of 1.43 while the distance proxy is found to be negative and significant as predicted by the basic gravity equation. Total trade to GDP ratio of India is also found to have a highly significant impact and the presence of regional trade agreements and the common border have a positive and significant impact on the overall trade volume of India.

c) Pakistan to Sri Lanka: The model analysis for total trade of Pakistan with Sri Lanka as the destination has an overall significance of 0.89 as reflected by the value of the R^2. As per conventional theory the GDP of Pakistan, GDP of Sri Lanka, total trade to GDP ratio of Pakistan, total trade to GDP ratio of Sri Lanka have a positive and significant impact on the total trade while per capita GDP of Pakistan has a negative and significant effect on the total trade flows from Pakistan to Sri Lanka. Total trade to GDP ratio of Pakistan is negative while transportation costs (used as a proxy for distance estimation), RTA and BRD effects are found to be positive but insignificant that is a contrast to high significance for all other trading partnerships studied in this paper.

d) Sri Lanka to Pakistan: The model analysis for total trade of Sri Lanka with Pakistan as the destination has an overall significance of 0.88 and as per the convention the per capita GDP and Total trade to GDP ratio of Sri Lanka is found to have a positive and significant impact while the distance is found to negatively impact total trade flows from Sri Lanka to Pakistan. However, when the dummy for the border is introduced it indicates a trade enhancing effect. Similarly, the presence of a regional trade agreement is found to be highly significant in increasing the total trade volumes of Sri Lanka.

CONCLUSIONS AND RECOMMENDATIONS

This study examines the impact of free trade agreements, common border effects, and common ethnicity macroeconomic variables on the bilateral trade of Pakistan with its bordering country India versus the impact on trade in the context of Sri Lanka with which Pakistan enjoys

friendly ties. Results estimated using time series data for the period 1985 to 2015 provide evidence that RTAs and common borders have a positive and highly significant impact for all trading countries. However, SAFTA effects when studied in terms of trade flows directed from Pakistan to Sri Lanka are positive but not highly significant. The estimates for ethnicity and common language were found to be insignificant and therefore dropped from the analysis. Further, it was found that SAFTA's ineffective due to the elaborate sensitive items lists, religious compulsions and geo-political dynamics prevailing in the region. Surprisingly, Pakistan seems to be unaffected by SAFTA and despite the non-existent border with Sri Lanka enjoys a cordial relationship. While looking at it from the Sri Lankan perspective we see that SAFTA and the possibility of a common border would highly support Sri Lanka to openly engage in trade despite the Indian pressure for buying their goods that are further facilitated by the proximity enjoyed by virtue of its geographical advantage and political dominance. However, overall trade creation despite these limitations points to welfare gains, and there exists a need to analyse sector-wise exports and imports to look at the dimensions of equity and welfare. Further clarity can be attained by scrutinizing the list of sensitive items and how to amend them to achieve higher efficiencies and address the factors that render them ineffective.

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