ISSN 2413-3175
2016/11

The Commonwealth

INTERNATIONAL TRADE WORKING PAPER

Revisiting South Asian Integration: Trade Flows and Implied Distances Between Members

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International Trade Working Paper 2016/11
ISSN 2413-3175

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Please cite this paper as: Hashim, DA and Razzaque, MA (2016), 'Revisiting South Asian integration: Trade flows and implied distances between members', *International Trade Working Paper* 2016/11, Commonwealth Secretariat, London.

Abstract

The paper undertakes the estimation of two alternative indicators of integration—potential trade and trade distance—by estimating the Global Gravity Model, consisting a panel data of nearly 100 largest trading partners of the world and 12–years period during 2002–13. Empirical results show that South Asia utilizes only 14 per cent of its intra-regional trade potential. Considering the global experience, this would indicate that implied average distance between South Asian trading pairs is 3,240 km, significantly higher than the actual geographical weighted distance of 1,872 km. Two pairs—India-Pakistan and India-Bangladesh—are found to be majorly responsible for low integration in South Asia.

JEL Classification: F15

Keywords: integration, intra-regional trade, liberalization, South Asia

Contents

List of Abbreviations

AFG	Afghanistan
AGO	Angola
APEC	Asia-Pacific Economic Cooperation
ARE	United Arab Emirates
ARG	Argentina
ASEAN	Association of Southeast Asian Nations
BEL	Belgium
BGD	Bangladesh
BRA	Brazil
BTN	Bhutan
CAN	Canada
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
CHE	Switzerland
CHN	China
CIV	Côte d'Ivoire
COMCOL	Common Colonizer
CUs	Customs Unions
DEU	Germany
ECOWAS	Economic Community of West African States
EU	European Union
FDI	Foreign Direct Investment
FRA	France
FTAs	Free Trade Areas
GBR	United Kingdom
GDP	Gross Domestic Product
GHA	Ghana
GLS	Generalised Least Squares
HKG	Hong Kong China
IDN	Indonesia
IMF	International Monetary Fund
IND	India
JPN	Japan
Km	Kilometre
KWT	Kuwait
LKA	Sri Lanka
MDV	Maldives
MERCOSUR	Mercado Común del Sur
MEX	Mexico
MFN	Most Favoured Nation
MYS	Malaysia
NAFTA	North American Free Trade Agreement
NGA	Nigeria
NPL	Nepal
PAK	Pakistan
RTAs	Regional Trade Agreements
SAARC	South Asian Association of Regional Cooperation
SADC	Southern African Development Community
SAFTA	South Asian Free Trade Area
SAPTA	South Asian Preferential Trading Arrangement

SAU	Saudi Arabia
SGP	Singapore
THA	Thailand
URY	Uruguay
USA	United States of America
WITS	World Integrated Trade Solutions
ZAF	South Africa

1. Introduction

South Asia, comprising eight countries, namely Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan and Sri Lanka, accounts for 21 per cent (about 1.7 billion) of the world's population, a quarter of the global middle class and the globe's largest working-age population. Exhibiting a growing share of the world economy, the region registered an impressive annual average growth of 8.8 per cent during 2005–10[1]. Despite the somewhat moderated performance in recent years, it remains amongst the top growth performers. This impressive economic growth has contributed to declining poverty incidence and improvements in other socio-economic indicators. Nevertheless, South Asia is home to the largest population in the world of poor and undernourished people, with more than 500 million people living on less than US$1.25 a day and a high proportion of the total poor population of the globe, increasing from 32.3 per cent in 1990 to 41.7 per cent in 2010[2]. Robust and sustained economic growth, along with increased participation in international trade, is recognised by the region as an important route to tackling poverty.

It is generally regarded that South Asia has so far failed to make use of regional integration and cooperation, including enhanced intra-regional trade, an effective avenue for accelerating economic growth, employment generation and poverty reduction. The 'non-cooperation' among South Asian nations also has an adverse impact on consumer welfare (Chatterjee and George 2014). Unilateral trade liberalisation over the past decades has resulted in significant opening up of individual South Asian economies, as evident in the region's rapid rise in trade orientation – measured by the trade-to-gross domestic product (GDP) ratio – from 19 per cent in 1990 to 52 per cent in 2012. However, this has not translated into rising significance of intra-regional trade. Indeed, the share of intra-regional trade of total trade of the region has been just around 5–6 per cent since the early 1990s. This is in contrast to the share of global intra-regional trade (or intra-preferential trading arrangement – intra-PTA), which has increased from 18 per cent in 1990 to 35 per cent in 2011 (WTO 2011). Considering the regions, intra-PTA trade is 70 per cent for the European Union (EU), 49 per cent for the North American Free Trade Agreement (NAFTA) and 25 per cent for the Association of Southeast Asian Nations (ASEAN).

Geographically, however, South Asia is well placed to have an effective economic integration. India, which constitutes over 80 per cent of South Asia's external exports and 70 per cent of the area and population of the region, shares borders with all countries except Afghanistan. The three largest countries of the region – India, Pakistan and Bangladesh – were a common market under the British system until 1947 and shared strong cultural ties. India's lingual connection with most of the nations of the region remains strong even today. Yet, the geopolitical issues in the region have outweighed the positive effects of all factors in favour of stronger economic ties. The 'big four' nations of the region – India, Pakistan, Bangladesh and Sri Lanka – trade largely with the external world rather than neighbouring economies. It is mostly the smaller countries that seem to be more intensely engaged in intra-regional trade.

The issue of regional integration and cooperation has been on policy-makers' agenda for a long time, as reflected in the establishment of the South Asian Association of Regional Cooperation (SAARC) in 1985, the setting up of the South Asian Preferential Trading Arrangement (SAPTA) and, finally, moving towards the implementation of a South Asian Free Trade Area (SAFTA) by 2016. However, implementation of SAFTA has faced political hurdles, beginning with the denial of the most favoured nation (MFN) status by Pakistan to India owing to continuing political

1 Over a longer period, from 1990 to 2010, the region has registered an annual average output growth of 6 per cent, which is much higher than the corresponding global GDP growth of 2.8 per cent and more than one percentage point higher than the average growth achieved in developing countries.

2 This is despite the fact that the percentage of population living in poverty (people living on less than $1.25 a day) has reduced drastically from 45 per cent in 1999 to an estimated level of 31 per cent in 2010, which indicates that the reduction in poverty level in the region has lagged far behind that of the global average.

conflict between India and Pakistan (Sawhney and Kumar 2008). Analysts have argued that such initiatives have generally failed to provide momentum to intra-regional trade owing to numerous reasons including lack of trade complementarity, limited product coverage and tariff preferences for regional trade, limited connectivity, lack of political will, etc.[3]. It has also been suggested that South Asian nations tend to impose more stringent barriers on their intra-regional trade flows than their imports coming from the rest of the world (World Bank 2010).

There is, however, some scepticism about the level of trade integration in the region. One core line of argument in this is that larger South Asian countries have to be more open to global trade for their export and GDP growth. And, given this orientation, intra-South Asian trade cannot be very high. This argument, however, fails to consider the importance of proximity for trading between countries. There is a rich literature on economic geography and trade that seems to suggest that countries sharing borders and in regional proximity should trade more between them given the costs of trading. The 'distance' parameter in all empirical gravity modelling exercises returns 'negative elasticities' to demonstrate the adverse impact of being far from trading partners.

Against this backdrop, the main objective of this paper is to assess trade integration in the South Asia region. For this, the potential trade between partners is compared with the actual trade flows between them[4]. To estimate the potential trade, we use a global gravity model, which is considered one of the most successful empirical workhorses in explaining international trade flows. Panel data comprising nearly 100 of the largest trading countries, along with all South Asian countries, over the period 2002–13 are utilised for this purpose. The countries included in the panel averaged over 98 per cent of the value of global merchandise trade during the study period.

Using the estimates of the gravity model, we also make an attempt to compute the trade distance between countries in South Asia based on their actual trade flows. As the distance parameter in the gravity model is generally considered to reflect trading costs, the presented estimates of trade distance between South Asian countries provide some interesting perspectives on regional integration in the light of the discussions on economic geography and international trade. Given that geographic distance cannot be altered, trade distance becomes a policy variable for countries to target for achieving maximum possible integration in the context of the gravity model.

2. Distance, trade costs and trade potential – a brief review of select literature

The premise of the relatively recent broad-based consensus on the importance of regional integration for low-income developing countries is quite different from the traditional objective of protecting their regional markets. Regional integration, often without the use of discriminatory trade policies, is considered a process where deepened and effective cooperation for movement of goods and services enables production of exports for the bigger world markets. This extended cooperation can involve services sectors, infrastructure development, trans-shipment, etc.

The literature on economic geography and trade suggests that countries in close proximity and which share borders should trade more between them given that otherwise the costs of trading would restrict exports and imports. The 'distance' parameter in all empirical gravity modelling exercises returns 'negative' elasticities to demonstrate the adverse impact of being far from trading partners. It has been demonstrated

3 Some of these have been discussed in Sawhney and Kumar (2008), Basher (2014), Zaman (2014) and De (2014).

4 Potential trade is defined as the trade achieved at an estimated frontier in the case of the most open and frictionless trade possible given current trade, transport and institutional technologies or practices (Drysdale *et al.* 2000, Kalirajan 2000, Armstrong 2007).

that unfavourable geographical locations increase the costs of both exports and imports relative to countries with more favourable geographical characteristics. A 10 percentage point increase in transport costs is found to reduce trade volumes by about 20 per cent, and a median landlocked country's shipping costs are shown to be more than 50 per cent higher than those of a median coastal country (Limao and Venables 2001). Consequently, transport costs alone can make a country's exports uncompetitive and for the same reason countries in a regional neighbourhood should expect lower transport costs, resulting in increased trade volumes[5]. Information acquisition and transit time associated with long-distance transport further add to the transport cost (Redding and Venables 2004).

Similarly, producers, when dealing with more distant countries, suffer a market access penalty on their sales and also face additional costs on imported inputs owing to transport costs and other barriers to trade (Redding and Venables 2004). Transport cost in the form of freight and insurance expenses is found to constitute a significant proportion of the value of imports. According to Hummels (1999), freight and insurance expenditure, as a proportion of the value of manufacturing imports, accounts for 10.3 per cent in the USA, 15.5 per cent in Argentina and 17.7 per cent in Brazil.

While countries in proximity are expected to trade more, they are also likely to have serious disputes and get involved in conflicts (Vasquez 1995). Diehl (1991) considers geographic proximity as one factor consistently found to enhance the likelihood of a war. Not only are contiguous countries more likely to have initial disputes, such disputes between neighbouring countries are more likely to evolve into enduring rivalries (Stinnett and Diehl 2001). Since contiguous nations, owing to lower transport costs, have a tendency to trade more, it may be argued that higher trade between them helps in mitigating the political conflicts. If, however, artificial barriers are erected to reduce trade between two countries of proximity, political differences would have a tendency to persist. Such artificial barriers increase the trade distance between them, lowering both the trade flows and the chances of the resolution of political conflict. However, some economists, such as Bhagwati (1993) and Panagariya (1995), have argued against proximity being an important determinant of international trade. Yet, the proximity captured by gravity models has produced statistically consistent results for empirical analysis of international trade.

There are several studies that highlight the benefits of higher intra-regional trade. Amongst others, Krugman (1991) argues that free trade areas (FTAs) or customs unions (CUs) formed along 'natural' lines, i.e. between neighbouring or geographically proximate countries, should be encouraged because the benefits are likely to outweigh the costs. This has been supported by others including Frankel and Wei (1995), Frankel *et al.* (1997) and the success stories of trading blocs such as the EU and ASEAN. Greater intra-regional trade is also found to encourage investment flows between the trading partners. Banga (2004) found that RTAs, such as ASEAN and APEC, have positively influenced FDI inflows into the regions as the risks associated with investments decline with greater regional integration. Pigato *et al.* (1997) argue that low intra-regional trade means a high premium on smuggling of goods across the border, which leads to undermining the rules of law, loss of revenue collection for government and passing on the cost of smuggling to consumers.

Indicating high potential for generating intra-regional trade, Moinuddin (2013) argues that there are reasons to be optimistic about SAFTA becoming a cohesive and profitable regional trading bloc. He says that the recent success in the growth performance of the South Asian countries offers prospects as well as challenges for deeper integration with the global economy, and integration under the SAFTA must be the first step in that direction. Hassan (2001), estimating gravity model using panel and cross-sectional data for the 1996–2002 period, found evidence of trade creation among the SAARC member countries, without any trade diversion with the rest of the world.

5 The implication is that the cost can increase further if goods are transported through a neighbouring country that also suffers from weak road networks and poor infrastructure. Given this natural disadvantage, existing trade preferential margins, where available, may not be enough to make exports directed at global markers competitive and to attract foreign investment in the export sectors.

Srinivasan (1994) and Srinivasan and Canonero (1995) showed that unilateral trade liberalisation may yield more gains for the region than a preferential trade agreement. Raihan and Razzaque (2014) suggest that gains from regional trade facilitation for all South Asian countries are much higher than gains from mere tariff cuts. Presenting a case against the complementarity in production and export of South Asian countries as one of the reasons for low intra-regional trade in the region, Banga and Razzaque (2014) show that there is tremendous scope for cooperation in the textiles and clothing sector. Evaluating the political–economic and strategic benefits of deeper integration in South Asia from the Indian perspective, Sawhney and Kumar (2008) mention myriad constraints that restrict economic interaction among the South Asian countries. They conclude that a successful SAARC directly contributes to India's strategic objectives both in the region and globally, and hence the country must take the necessary initiatives to rejuvenate integration and revive regional cooperation in South Asia. Taneja *et al.* (2014) suggest that India could alleviate regional trade barriers by bringing down its SAFTA-sensitive list to zero, improving transparency of its non-tariff measures and further committing to undertaking asymmetrical responsibilities in the region.

South Asia is found to be greatly lacking in the utilisation of its trade potential. Frankel *et al.* (1997), in his estimate of gravity model to argue that proximity is in general an important determinant of bilateral trade around the world, found that there is only one case, i.e. South Asia, that behaves against the natural blocs argument. Frankel and Wei (1995) estimated that India and Pakistan trade 70 per cent lower than two otherwise identical economies. Lahiri (1998) argued that trade between India and Pakistan is restricted by numerous quantitative, administrative and political factors, which can be called 'inverse regionalism'. Dayal *et al.* (2008), based on a gravity model on panel data involving SAARC countries (minus Afghanistan) over the period 1995–2005, found that SAARC countries traded only US$3.6 billion per year as compared with the potential of US$8.0 per year, utilising only around 45 per cent of the potential. In value terms, India–Pakistan witnessed the maximum loss of trade with the actual to potential trade ratio measuring around 18 per cent. Some trading partners were found to have very little bilateral trade and could increase their trade by almost 100 per cent. These were Bhutan–Maldives, Bhutan–Sri Lanka, Maldives–Nepal and Bangladesh–Maldives. On the other hand, some trading partners were trading more than their potential trade, e.g. India–Sri Lanka and Sri Lanka–Maldives.

The basic limitation with the existing literature on the estimation of potential trade in South Asia is that they are based on only the region's data, and hence fail to benchmark the trade in the framework of the global experiences. Even more importantly, the available estimates are dated, and may not serve the purpose in the rapidly changing dynamics of South Asia. The present study attempts to overcome this lacuna by estimating the potential trade of South Asian countries in the framework of global trade experiences by using the data for the most recent years. The study also attempts to add to the literature the estimation of trade distance, as opposed to the geographical distance, as a measure of trade integration for South Asian trading partners.

3. Intra-regional trade in South Asia – some basic features

Intra-regional trade in South Asia, as compared with the total trade of the region, has been low and shows no sign of improvement (Table 1). It measured around US$41 billion in 2012, constituting just over 4 per cent of total merchandise trade of the region, which compares unfavourably with the figure of ASEAN at 25 per cent. Even as continuous efforts are on-going to increase the share of SAARC intra-regional trade, results have yet to reflect the same. On the contrary, the share has spiralled down from a level of 5.7 per cent in 2003 to 4.2 per cent in

Table 1. Trends in South Asia's trade

Year	SAARC trade with world		SAARC intra-regional trade		Share of intra-regional in total trade (%)	
	Volume (US$ billion)	Growth (%)	Volume (US$ billion)	Growth (%)	SAARC	ASEAN
2002	158.2	11.8	7.8	12.4	4.9	22.7
2003	192.9	21.9	11	41.0	5.7	24.4
2004	244.7	26.9	13.4	21.8	5.5	24.4
2005	324.8	32.7	18	34.3	5.5	24.9
2006	402	23.8	21.1	17.2	5.2	24.9
2007	510	26.9	27.8	31.8	5.5	25
2008	601.3	17.9	30.6	10.1	5.1	24.9
2009	539.2	–10.3	23.8	–22.2	4.4	24.3
2010	721.4	33.8	33.4	40.3	4.6	24.6
2011	960.2	33.1	41.3	23.7	4.3	24.3
2012	964.9	0.5	40.8	–1.2	4.2	24.6

Source: IMF Directions of Trade Statistics. Bhutan data, taken from UNCOMTRADE, have been added to the respective figures.

Table 2. Trends in intra-regional trade of South Asian countries (US$ million)

Year	IND	BGD	PAK	LKA	NPL	AFG	BTN	MDV
2002	3,146 (40.5)	1,300 (16.7)	711 (9.2)	1,190 (15.3)	954 (12.3)	352 (4.5)	N/A	117 (1.5)
2003	4,581 (41.7)	1,725 (15.7)	1,096 (10.0)	1,526 (13.9)	1,265 (11.5)	654 (6.0)	N/A	130 (1.2)
2004	5,306 (39.6)	2,014 (15.0)	1,559 (11.6)	2,083 (15.6)	1,507 (11.3)	772 (5.8)	N/A	152 (1.1)
2005	6,622 (36.7)	2,309 (12.8)	2,563 (14.2)	2,637 (14.6)	1,784 (9.9)	1,440 (8.0)	522 (2.9)	146 (0.8)
2006	7,723 (36.6)	2,505 (11.9)	3,381 (16.0)	2,952 (14.0)	2,055 (9.7)	1,738 (8.2)	603 (2.9)	135 (0.6)
2007	10,791 (38.8)	3,217 (11.6)	4,466 (16.1)	3,460 (12.4)	2,565 (9.2)	2,215 (8.0)	907 (3.3)	171 (0.6)
2008	10,604 (34.6)	4,335 (14.2)	4,884 (15.9)	4,228 (13.8)	2,809 (9.2)	2,658 (8.7)	917 (3.0)	195 (0.6)
2009	8,994 (37.8)	3,483 (14.6)	3,504 (14.7)	2,495 (10.5)	2,013 (8.5)	2,238 (9.4)	880 (3.7)	178 (0.7)
2010	13,218 (39.6)	4,798 (14.4)	5,433 (16.3)	3,493 (10.5)	2,627 (7.9)	2,611 (7.8)	989 (3.0)	205 (0.6)
2011	16,324 (39.5)	6,321 (15.3)	5,391 (13.0)	5,510 (13.3)	3,500 (8.5)	2,973 (7.2)	1,095 (2.6)	233 (0.6)
2012	17,203 (42.2)	5,932 (14.5)	5,551 (13.6)	4,962 (12.2)	3,872 (9.5)	3,052 (7.5)	N/A	223 (0.5)
Average annual growth (%)	20.2	18	26.3	18.9	16.6	27.6	14.4	7.3

Countries are arranged based on the descending order of values for 2012. Figures in brackets are respective shares (%) in total South Asia intra-regional trade.

Source: IMF Directions of Trade Statistics (Bhutan data are taken from UNCOMTRADE).

Table 3. Share of intra-regional in total trade (%)

Country	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
BTN	N/A	N/A	N/A	82.7	74.4	79.1	86.7	87.9	80.0	75.0	N/A
NPL	47.5	56.6	58.6	61.9	63.7	64.7	63.1	59.4	58.9	58.9	53.5
AFG	31.4	36.0	36.0	43.6	42.6	42.1	40.4	30.5	29.3	27.4	31.7
LKA	11.1	12.9	15.1	17.3	17.2	17.7	18.5	13.8	15.7	17.2	18.3
MDV	24.3	22.3	19.8	17.4	13.0	13.7	12.4	15.7	15.3	13.9	13.7
BGD	9.8	10.6	10.5	10.3	9.0	10.3	11.6	9.6	10.8	10.7	10.5
PAK	3.4	4.4	5.0	6.2	6.7	7.6	7.2	7.1	8.3	7.0	7.2
IND	2.9	3.4	3.0	2.8	2.6	2.8	2.3	2.1	2.3	2.1	2.2

Countries are arranged based on the descending order of values for 2012.

Source: IMF Directions of Trade Statistics (Bhutan data are from UNCOMTRADE).

2012. This is an indication that SAPTA, which eventually gave way to SAFTA, has yet to yield results at the ground level and more rigorous efforts may be needed to improve the situation.

Even as the share of intra-regional trade in South Asia has not registered any improvement over the years, the absolute figures of intra-regional trade for all countries have risen significantly since 2002 (Table 2). Afghanistan has recorded the highest average annual growth (28 per cent), followed by Pakistan (26 per cent) and India (20 per cent). Maldives has recorded the minimum growth (7 per cent) among all the regional countries. As expected, countries' shares in intra-regional trade vary a great deal, ranging from around 42 per cent in the case of India to 0.5 per cent in the case of Maldives in 2012. Even though the share of a country in intra-regional trade is largely in line with the size of the economy, the relationship is far from perfect. India, which constitutes over 82 per cent of South Asia GDP, accounts for only 42 per cent of the region's intra-regional trade. Other countries of the region, on the other hand, have a higher share in intra-regional trade than their respective share in the region's GDP. This clearly indicates that, while all countries in South Asia, especially the larger economies, need to augment their intra-regional trade, India would have to do it at a much faster pace. Going by the recent trend, however, it would require radical initiatives for this to happen. It is important to mention that India stands to gain

Table 4. Average yearly bilateral trade of SAARC pairs (2002–13)

Partner	Trade (US$ million)	Partner	Trade (US$ million)
IND-LKA	3003.55	BGD-BTN	15.02
IND-BGD	2561.09	BGD-AFG	8.58
IND-NPL	1878.09	BTN-NPL	6.76
IND-PAK	1525.62	PAK-NPL	5.14
PAK-AFG	1481.67	PAK-MDV	4.04
IND-AFG	386.47	NPL-AFG	2.52
PAK-BGD	383.56	LKA-NPL	2.10
PAK-LKA	257.96	LKA-AFG	1.51
IND-BTN	241.44	PAK-BTN	0.67
IND-MDV	89.28	BGD-MDV	0.45
LKA-MDV	64.69	BTN-MDV	0.07
BGD-NPL	33.83	LKA-BTN	0.05
BGD-LKA	28.27	NPL-MDV	0.04

In many cases, the average may not necessarily pertain to the 2002–13 period because of non-availability of data.

Source: UNCTAD Comtrade. (In a few cases, data were also sourced from IMF Directions of Trade Statistics.)

substantially from greater economic integration in the region (Sawhny and Kumar 2008).

If we desire that intra-regional trade in South Asia should touch at least 20 per cent of the region's total trade, the four largest economies of the region would have to step up their intra-regional trade as a percentage of total trade to the same level. The largest efforts will have to be made by India with the smallest intra-regional trade share at mere 2 per cent of its total trade and worryingly the share assumed to have a declining trend. Pakistan (7 per cent) and Bangladesh (11 per cent) will also have to go a long way to step up the share of their intra-regional trade. On the other hand, Bhutan and Nepal are the two economies which carry out more than half of their total trade within the region.

It is interesting to note that South Asia's trade is concentrated mainly on five pairs of trading partners – India with Sri Lanka, Bangladesh, Nepal and Pakistan, and Pakistan–Afghanistan, constituting over 87 per cent of the region's trade (Table 4). India–Pakistan – the two largest economies of the region – is ranked fourth in terms of volume of trade, far behind India–Sri Lanka at rank one. At the other extreme, the five smallest volume trade pairs – Pakistan–Bhutan, Bangladesh–Maldives, Bhutan–Maldives, Sri Lanka–Bhutan and Nepal–Maldives – do not have a bilateral trade of even US$1 million per year. Based on these figures, however, it is difficult to comment on whether a particular pair is over- or undertrading, as the value would depend on several factors, including the size of economies and distance between trading partners. This will be discussed later in the paper in the light of the findings of the gravity model.

4. Determinants of the trade gravity in South Asia

The potential intra-regional trade in a pair or of a region would depend upon several factors, including the composition of GDP, distance, connectivity and other socio-economic and cultural factors; what can be called the determinants of the trade gravity model. It can be shown

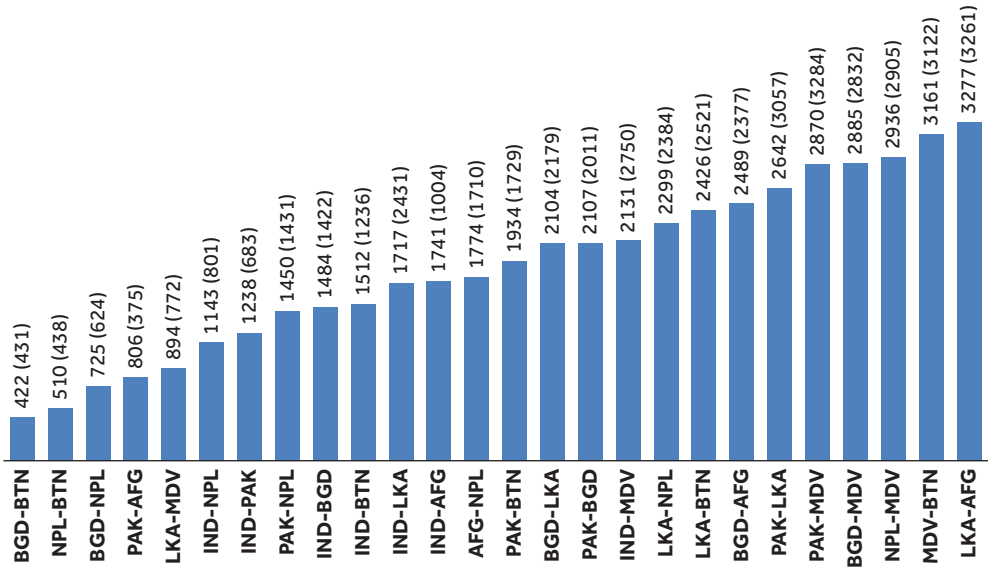
Table 5. Some indicators of geo-economic characteristics of South Asian countries (2013)

Country	Surface area (sq. km)	Population (millions)	GDP (const. 2005 US$ billion)	GDP per capita (const. 2005 US$)	Population density (per sq. km)
IND	3,287,260 (64.0%)	1,252.1 (74.9%)	1,458.7 (82.5%)	1,165	421
PAK	796,100 (15.5%)	182.1 (10.9%)	143.8 (8.1%)	790	236
BGD	148,460 (2.9%)	156.6 (9.4%)	97.3 (5.5%)	621	1,203
LKA	65,610 (1.3%)	20.5 (1.2%)	41.1 (2.3%)	2,004	327
AFG	652,860 (12.7%)	30.6 (1.8%)	12.7 (0.7%)	415	47
NPL	147,180 (2.9%)	27.8 (1.7%)	11.4 (0.6%)	409	194
MDV	300 (0.0%)	0.3 (0.0%)	1.7 (0.1%)	4,926	1,150
BTN	38,394 (0.8%)	0.8 (0.1%)	1.5 (0.1%)	1,977	20

Countries are arranged in descending order of GDP. Figures in brackets are respective shares in South Asia.

Source: Calculated from World Development Indicators, The World Bank.

Figure 1. Bilateral weighted distance between pairs of South Asian countries (km)



Source: Source: CEPII (www.cepii.com/distanc).

Note: Corresponding distance between the capital cities of two countries are given in parentheses.

that South Asia possesses several important features which make the region a special case in that it enjoys a high magnitude of intra-regional trade. The large eco-geographic size of the region along with wide variations among countries in respect of features such as surface area, population, per capita income, distance and connectivity not only raise the potential trade of the region but also make it quite different across trading pairs.

Some important eco-geographic features of South Asian countries are mentioned in Table 5. In terms of important size indicators, India is by far the largest country, constituting 64 per cent of surface area, 75 per cent of population and 81 per cent of the region's GDP. Pakistan, with 15 per cent of surface area, 10.7 per cent of population and 9.3 per cent of GDP, is the next in the league. India, Pakistan, Bangladesh and Sri Lanka are the four largest economies of

Table 6. Some important trade augmenting factors

Partner	Contiguity	Common official language	Common coloniser	Same country
IND-BGD	Yes	No	Yes	Yes
BGD-LKA	No	No	Yes	No
BGD-MDV	No	No	Yes	No
BGD-PAK	No	No	Yes	Yes
IND-BTN	Yes	No	No	No
IND-LKA	No	No	Yes	No
IND-MDV	No	No	Yes	No
IND-NPL	Yes	No	No	No
IND-PAK	Yes	Yes	Yes	Yes
LKA-MDV	No	No	Yes	No
PAK-LKA	No	No	Yes	No
PAK-MDV	No	No	Yes	No
PAK-AFG	Yes	No	No	No

Source: CEPII.

South Asia. Afghanistan and Nepal are the next distant largest economies, even though their per capita income is the lowest in the region. Bhutan and Maldives are extremely small economies, but their per capita income is among the highest. Bangladesh and Maldives are the most densely populated countries, whereas Bhutan and Afghanistan are the least densely populated countries in the region.

Short distance, better connectivity and some other common historical/linguistic/cultural linkages give a trading pair higher trade potential than a pair without these factors (Figure 1 and Table 6). While different measures of geographical distance between a pair of countries exist, we use the weighted distance calculated by CEPII[6] for the gravity model estimation, which is based on bilateral distance between the biggest cities of two countries, with intercity distances being weighted by the share of the cities in the overall country's population in 2004. The largest economy of the region, India, has below median distance with all countries except Maldives. It also shares borders with all countries except Afghanistan, has sea links with most countries in the region and enjoys contiguity with four economies (Pakistan, Bangladesh, Nepal and Bhutan). India also enjoys a common official language with Pakistan and has some lingual connection with most of the other nations of the region too. What also connects the South Asian countries is that six of them had a common coloniser and the three largest economies – India, Pakistan and Bangladesh – were the same country until 1947.

5. Gravity model specification and data

Drawing on stochastic frontier methodology, the trade potential in the South Asia region is estimated using the gravity model of trade. The concept of the gravity model owes its origin to Newton's law of universal gravitation relating the force of attraction between two objects as a function of combined mass and the distance between them. The basic gravity model, originally applied to international trade by Tinbergen (1962), postulates bilateral trade flows between country *i* and country *j* as a positive function of their size and a negative function of the distance between them. In other words, it assumes that larger and richer countries would trade more than smaller and poorer countries, all other factors being equal. Similarly, geographical proximity promotes bilateral trade flows, as it reduces transport and information costs. Country size is represented by GDP, population and per capita income of the trading partners. Distance is typically measured as the distance between the countries' capital cities. Predictability of the model is enhanced by incorporating certain dummy variables such as contiguity, geographical and cultural proximity such as common borders, common language, common coloniser, etc. Inclusion of additional variables, besides those in the basic gravity model, makes the model augmented. Trade performance is also affected by policies, institutions and regulations that facilitate or inhibit trade and investment and promote openness right across the economy (Armstrong *et al.* 2008). Armstrong (2007) makes the distinction between natural and core determinants such as geography, size and language, and those which are man-made or policy variables which might affect trade such as trade agreements, customs unions and import restrictions. Following in a similar line, we segregate determinants into natural and policy-related factors and consider only the first set of determinants to show the minimum potential that exists in the region. We additionally include the 'time' variable to neutralise the impact of inflation and other trend-related factors on trade.

We estimate the augmented gravity, which, besides GDP, 'distance' and 'time', includes 'contiguity' as an additional variable in Model I and common coloniser (comcol) as yet another variable in Model II. While we would focus on the results of Model II for analysis, the

6 See Mayer and Zignago (2006) for details.

estimates from Model I would help us understand the additional impact of 'common coloniser'. Both the 'contiguity' and 'common coloniser' dummies are expected to have positive coefficients in the estimations.

The following are the two alternative models that have been estimated in the present study:

Augmented gravity models

Model I

$$\ln(Trade_{ijt}) = \alpha_0 + \beta_1 \ln(GDP_{it} \times GDP_{jt}) + \beta_2 \ln(Distance_{ij}) + \beta_3 (Time) + \beta_4 (Contiguity) + \in_{ijt}$$

Model II

$$\ln(Trade_{ijt}) = \alpha_0 + \beta_1 \ln(GDP_{it} \times GDP_{jt}) + \beta_2 \ln(Distance_{ij}) + \beta_3 (Time) + \beta_4 (Contiguity) + \beta_5 (Comcol) + \in_{ijt}$$

where $Trade_{ijt}$ = bilateral trade (exports plus imports) between country i and country j at time t (measured in US$); GDP = gross domestic product at constant US$ (2005); $Distance_{ij}$ = distance between two countries based on bilateral distances between the biggest cities of those two countries, those inter-city distances being weighted by the share of the city in the overall country's population; Time = trend variable; Contiguity = dummy variable to identify a pair of countries that are adjacent or contiguous – it is unity if countries are contiguous and 0 when they are not; Com_{Col} = dummy to capture if two countries have had a common coloniser after 1945; $\in_{ij}$ = normally distributed error term, representing myriad other influences on bilateral trade; and ln = natural log.

The stochastic frontier estimation is based on the annual trade data (exports plus imports) of South Asian countries plus around 90 other countries of the globe (accounting for over 98 per cent of global merchandise trade) observed during 2002–13. The trade data for the estimation are taken from the WITS (World Bank). In some cases, we have also utilised data from IMF Directions of Trade Statistics. GDP figures have been extracted from the World Development Indicators of the World Bank. Distance and contiguity variables are taken from the CEPII database.

6. Model estimation and results

We use the generalised least squares (GLS) regression, corrected for heteroscedasticity, in our estimation of global gravity equations. The estimation, involving panel data of nearly 100 countries over 2002–13, had a total of 4,781 trading partners and 55,312[7] observations[8]. In order to analyse the impact of time-invariant factors in the models, we estimated the coefficient through the 'random effects model' rather than the 'fixed effects model'. We could not include 'population' as an additional variable (representing the size of the country) as it did not turn out to be statistically significant at the 5 per cent level.

Estimates of gravity equations are presented in Table 7. All coefficients of the gravity models turned out to be statistically significant at the 1 per cent level and retained their expected signs. Coefficients of variables GDP and Distance are similar in both models. Coefficient of GDP was found to be around 1.3, which means that a 1 per cent increase in combined GDP of two trading partners would on average lead to a 1.3 per cent increase in trade between them, keeping other factors constant. Similarly, a 1 per cent increase in distance is expected to reduce the trade between two trading partners by 1.2 per cent, other things remaining the same. The Time

7 This also includes 3,252 observations on which bilateral trade data was not available in some groups.

8 For a few pairs, we did not have any data on bilateral trade during the study period and therefore had to drop those pairs from estimation.

Table 7. Estimates of gravity models

Variable	Model I		Model II	
	Coefficient	Z-statistics	Coefficient	Z-statistics
Constant	–43.0329	–64.81	–44.094	–65.31
GDPij	1.257362	98.47	1.2709	98.55
Distance	–1.19913	–37.49	–1.16176	–36.75
Time	0.041159	28.29	0.040056	27.34
Contiguity	0.97578	8.36	0.939076	8.09
Comcol			1.308529	9.73
	Wald chi^2 = 19244 Prob > Chi^2 = 0.0000		Wald chi^2 = 19431.57 Prob > Chi^2 = 0.0000	

Source: Authors' estimation.

variable, which has been introduced to capture the impact of inflation and other trend-related factors on trade, was found to be 0.04, which implies that trend causes trade to increase by around 4 per cent every year, much of which could possibly be attributed to inflation because the trade value in the estimates is at current prices whereas GDP is at constant prices. The value of coefficient on 'contiguity' suggests that two countries sharing a common land border would trade around 2.6 times more than two otherwise similar countries. Similarly, value of coefficient on 'common coloniser', as estimated in Model II, enhances the trade between two trading countries by 3.7 times, as compared with a pair which did not have this variable in common.

6.1 Identifying potential trade in South Asia

Based on our estimates of gravity models, we estimate the potential (predicted) values of bilateral trade of South Asian countries and compare the results with corresponding values of actual trade (Table 8). While Model I estimates the actual trade as ratio of potential trade at 0.44, Model II measures it at 0.14. One point to note here is that even by the conservative estimate of Model I, South Asia's actual intra-regional trade has been less than half of the potential trade. The large difference in value of potential trade between Model I and Model II shows that the dummy in the form of 'common coloniser' has a substantial positive impact on trade the world over. Consequently, two pairs – Bangladesh–Sri Lanka and Pakistan–Bangladesh – sharing 'common coloniser' which were performing higher than the potential trade as per Model I turned out to be undertrading as per Model II. On the other hand, Pakistan–Bhutan (with no common coloniser) reported undertrade in Model I but showed overtrade in Model II. For the same reason, Sri Lanka–Maldives, exhibiting the ratio of actual to potential trade as high as 207 times in Model I, saw the ratio shrink to only 69 times in Model II. Given the importance of the 'common coloniser' variable in explaining the global trade, we shall prefer Model II.

As per the estimates of Model II, intra-regional potential trade measured US$87 billion in comparison with the average actual trade of only US$12 billion per year. This means that South Asia utilises only 14 per cent of its potential, resulting in a trade loss of around US$75 billion per year over the course of the present study (2002–13). There are nine pairs of countries that contribute to this undertrading; however, only two pairs – India–Pakistan and India–Bangladesh – result in the major chunk of loss. Given that India and Pakistan are the two largest economies of the region and enjoy proximity and contiguity and had a common coloniser, trade potential between them is the largest at over US$61 billion per annum. With actual annual trade averaging at a mere US$1.5 billion, the annual trade loss between the two largest economies of South Asia during 2002–13 came to a whopping US$60 billion. Even in our restricted Model I, trade loss between Indian and Pakistan totalled US$17 billion per year, higher than the total average annual trade of the South Asia region. Numerous constraints can be cited to explain

Table 8. Estimates of yearly potential trade and comparison with actual values (2002–13)

Trading partner	Actual trade (US$ million)	Potential trade (US$ million)	Gap[a] (US$ million)	Ratio[b]	Potential trade (US$ million)	GAP* (US$ million)	Ratio**
		Model I			Model II		
IND-PAK	1,525.6	18,570.0	–17,044.4	0.08	61,044.6	–59,518.9	0.02
IND-BGD	2,561.1	6,677.5	–4,116.4	0.38	21,943.2	–19,382.2	0.12
BGD-MDV	0.45	0.47	–0.02	0.95	1.5	–1.1	0.30
LKA-BTN	0.1	0.2	–0.2	0.26	0.2	–0.1	0.31
PAK-NPL	5.1	16.9	–11.7	0.30	14.7	–9.5	0.35
BGD-LKA	28.3	19.3	8.9	1.46	63.6	–35.4	0.44
NPL-AFG	2.5	5.2	–2.7	0.49	4.4	–1.9	0.57
NPL-MDV	0.0	0.1	0.0	0.63	0.1	0.0	0.75
PAK-BGD	383.6	123.7	259.9	3.10	414.9	–31.4	0.92
PAK-BTN	0.7	0.7	0.0	0.94	0.6	0.1	1.10
IND-LKA	3,003.5	696.9	2,306.6	4.31	2,360.5	643.0	1.27
LKA-NPL	2.1	1.9	0.2	1.13	1.6	0.5	1.30
BGD-NPL	33.8	22.8	11.0	1.48	19.2	14.7	1.76
LKA-AFG	1.5	0.9	0.6	1.71	0.8	0.7	1.95
PAK-MDV	4.0	0.5	3.5	7.89	1.6	2.4	2.45
IND-MDV	89.3	10.7	78.6	8.34	35.0	54.3	2.55
PAK-LKA	258.0	28.0	230.0	9.21	93.6	164.3	2.76
IND-AFG	386.5	147.8	238.7	2.61	133.0	253.5	2.91
BGD-AFG	8.6	3.3	5.3	2.61	2.9	5.7	2.97
IND-NPL	1,878.1	712.3	1,165.8	2.64	609.2	1,268.8	3.08
BTN-MDV	0.1	0.0	0.1	6.12	0.0	0.1	7.49
IND-BTN	241.4	32.9	208.6	7.35	27.6	213.9	8.76
BGD-BTN	15.0	2.0	13.0	7.58	1.6	13.4	9.46
PAK-AFG	1,481.7	63.4	1,418.3	23.37	51.9	1,429.8	28.55
LKA-MDV	64.7	0.3	64.4	207.01	0.9	63.7	68.55
NPL-BTN	6.8	0.1	6.6	55.97	0.1	6.7	71.39
Total	**11,983**	**27,137.8**	**–15,155**	**0.44**	**86,827**	**–74,845**	**0.14**

[a]Actual values minus potential values.

[b]Actual to potential values of trade.

Source: Authors' calculation.

such an extensive loss of trade between the two countries, prominent among them being high tariff and non-tariff barriers, inadequate infrastructure, bureaucratic inertia, excessive red tape and direct political opposition (Zaman 2014). According to Zaman, while India has maintained high-tariff (especially on products of interest to Pakistan such as textiles, leather and onyx) and non-tariff barriers, Pakistan allows only a limited number of products (positive list) to be imported from India and has denied it the most favoured nation (MFN) status.

As per our estimates, India and Bangladesh have been doing an average yearly trade of only US$2.6 billion during 2002–13 as compared with the potential of US$22 billion, leaving a gap of over US$19 billion per year. Lower than potential trade between these two economies, among other factors, can be attributed to a poor state of trade facilitation, high transaction cost associated with cross-border exchanges, lack of

complementarity and numerous non-tariff barriers (Basher 2014). Basher suggests that major land ports, which facilitate more than half of the trade between two countries, are in need of construction of more sheds and cold storage facilities for perishables; procurement of new cranes and forklifts; construction of a bypass road to reduce traffic jams in the port; construction of a link road to be used exclusively by the passengers' vehicles and passengers entering and exiting Bangladesh; and streamlining and modernisation of customs facilities.

From the above, it is evident that only two pairs in South Asia, namely India–Pakistan and India–Bangladesh, have resulted in a trade loss of nearly US$79 billion per year. The key to narrowing the gap between potential and actual trade in South Asia thus lies in promoting India's trade with Pakistan as well as Bangladesh. Sawhney and Kumar (2008) observe that India stands to gain substantially from greater economic integration in the region and it is imperative for the country to inculcate an environment of trust among SAARC partners, which would encourage greater commitment to regional integration among all the countries. They add that India's emergence in the world economic order in the twenty-first century is not possible unless it ensures a stable and secure regional economy. India, despite enjoying massive significance in the region and a high growth rate, has so far not been able to act as a growth pole for South Asian countries, which points towards the potential gains the region could achieve through better and more effective integration (Banga 2014). It is equally in the interest of Pakistan, the second largest economy of the region, to engage in greater trade cooperation with India, and offer it much delayed MFN status at the earliest opportunity, as well as initiating other corrective measures. Bangladesh too has much to gain from this by widening and enhancing its trade competiveness and following a three-tiered approach to tackle the obstacles to export at, behind and over the border (Basher 2014).

Underlining that it is only India's trade with Pakistan and Bangladesh that holds the key for correction in the trade gap in South Asia, the other seven pairs undertrading, namely Bangladesh–Maldives, Bhutan–Sri Lanka, Nepal–Pakistan, Bangladesh–Sri Lanka, Nepal–Afghanistan, Nepal–Maldives and Pakistan–Bangladesh, jointly result in an annual trade loss of less than US$0.01 billion. Yet, it is important for the region that all pairs of countries, large or small, reach their potential trade.

Even as South Asia is found to be grossly lacking in intra-regional trade, it is interesting to note that the majority of the pairs (17) in the region exceed their potential trade and jointly contribute to overtrading of around US$4 billion per year. Over 80 per cent of this is contributed by only three border-sharing pairs – Pakistan–Afghanistan (US$1.4 billion), India–Nepal (US$1.3 billion) and India–Sri Lanka (US$0.6 billion). The remaining pairs, though relatively small in absolute values, exceed their respective potential in varying magnitudes with the maximum touching 71 times in the case of Nepal–Bhutan, followed by 69 times in the case of Sri Lanka–Maldives.

6.2 Trade distance in South Asia

Using the estimated gravity results, we now estimate the trade distance, as opposed to the geographical distance, in pairs of South Asian countries. Trade distance is derived from the gravity model based on the actual values of trade, keeping other factors constant. Here, instead of estimating potential trade for a given value of geographical distance in the gravity model, we estimate trade distance for a given value of actual trade, other factors remaining same. Hence, if actual trade is more than the potential trade between a pair of countries, it would imply that the trade distance between them is smaller than the geographical distance. On the other hand, if actual trade is less than potential trade, the trade distance between two trading partners would be higher than the geographical distance. Given that geographical distance cannot be altered, it is the trade distance that becomes the policy variable for achieving a higher level of integration, prompting us to undertake this exercise for the first time in the literature.

Estimates of trade distance along with the corresponding values of geographical distance for South Asian trading pairs are presented in Table 9. As per Model II, the average trade distance for South Asian countries at the aggregate level turns out to be 3,240 km, much higher than the geographical distance of 1,872 km, reflecting weak trade integration of the region. As expected, India–Pakistan has the highest trade distance of nearly 30,000 km as compared with the geographical distance of only 1,238 km. Similarly, India–Bangladesh has a trade distance of over 9,000 km, as compared with the geographical

Table 9. Estimates of trade distance (km)

Trading partner	Actual distance (weighted)	Trade distance	Ratio[a]	Trade distance	Ratio[a]
		Model I		Model II	
IND-PAK	1,238	9,925	0.12	29,558	0.04
IND-BGD	1,484	3,293	0.45	9,408	0.16
BGD-MDV	2,885	3,017	0.96	8,209	0.35
LKA-BTN	2,426	7,475	0.32	6,700	0.36
PAK-NPL	1,450	3,913	0.37	3,582	0.40
BGD-LKA	2,104	1,530	1.37	4,223	0.50
NPL-AFG	1,774	3,236	0.55	2,853	0.62
NPL-MDV	2,936	4,320	0.68	3,763	0.78
PAK-BGD	2,107	818	2.58	2,249	0.94
PAK-BTN	1,934	2,040	0.95	1,783	1.08
IND-LKA	1,717	508	3.38	1,395	1.23
LKA-NPL	2,299	2,074	1.11	1,830	1.26
BGD-NPL	725	524	1.38	447	1.62
LKA-AFG	3,277	2,080	1.58	1,833	1.79
PAK-MDV	2,870	512	5.61	1,324	2.17
IND-MDV	2,131	362	5.89	948	2.25
PAK-LKA	2,642	415	6.36	1,106	2.39
IND-AFG	1,741	781	2.23	695	2.51
BGD-AFG	2,489	1,118	2.23	975	2.55
IND-NPL	1,143	508	2.25	433	2.64
BTN-MDV	3,161	698	4.53	559	5.66
IND-BTN	1,512	286	5.29	233	6.49
BGD-BTN	422	78	5.43	61	6.95
PAK-AFG	806	58	13.88	45	17.95
LKA-MDV	894	11	84.99	24	37.87
NPL-BTN	510	18	28.82	13	39.58
Total	**1,872**	**1,908**	**0.98**	**3,240**	**0.58**

[a]Actual to potential values.

Source: Authors' calculations.

distance of around 1500 km. There are many other pairs where the trade distance is higher than the geographical distance, but their gap in absolute terms is much lower. It is significant to note that the majority of South Asia trading partners have a trade distance smaller than the corresponding value of geographical distance, indicating better trade integration than the average level of South Asia. The best example of integration is produced by Nepal–Bhutan, which is estimated to have a trade distance of only 13 km as compared with the geographical distance of 510 km.

6.3 Are India, Pakistan and Bangladesh biased against intra-regional trade?

It is well known that South Asia's trade is biased in favour of the rest of the world (RoW) as compared with intra-regional trade. Among others, Sattar (2014) indicates this by comparing the overall trade–GDP ratio of the region at 35 per cent with the intra-regional trade–GDP ratio at less than 5 per cent. Here we attempt to explain if this bias is also reflected in our estimated gravity model.

Table 10. Yearly trade and distance with top 10 trading partners (2002–13)

Partner	Actual trade (US$ million)	Potential trade (US$ million)	Ratio[a]	Actual distance	Trade distance	Ratio[a]
IND-ARE	17,944	12,082	1.49	2,319	1,651	1.40
IND-USA	17,810	72,199	0.25	13,132	43,706	0.30
IND-CHN	17,687	1,10,452	0.16	4,204	20,244	0.21
IND-SAU	9,874	5,669	1.74	3,509	2,170	1.62
IND-CHE	7,236	11,986	0.60	6,712	10,355	0.65
IND-DEU	6,724	22,205	0.30	6,566	18,377	0.36
IND-SGP	6,393	4,065	1.57	3,742	2,541	1.47
IND-HKG	5,739	9,035	0.64	3,840	5,657	0.68
IND-GBR	5,367	30,237	0.18	7,324	32,479	0.23
IND-BEL	5,108	1,482	3.45	6,948	2,407	2.89
Average	**9,988**	**27,941**	**0.36**	**5,830**	**13,959**	**0.42**
PAK-ARE	2,898	912	3.18	1,626	599	2.71
PAK-USA	2,659	4,680	0.57	12,267	19,856	0.62
PAK-CHN	2,605	5,257	0.50	4,420	8,070	0.55
PAK-SAU	1,983	290	6.84	2,808	536	5.24
PAK-IND	1,526	61,045	0.02	1,238	29,558	0.04
PAK-AFG	1,482	52	28.55	806	45	17.95
PAK-KWT	1,259	1,928	0.65	2,235	3,280	0.68
PAK-DEU	960	1,798	0.53	5,551	9,507	0.58
PAK-JPN	867	2,901	0.30	6,211	17,504	0.35
PAK-GBR	844	2,469	0.34	6,307	15,908	0.40
Average	**1,708**	**8,133**	**0.21**	**4,347**	**10,486**	**0.41**
BGD-IND	2,561	21,943	0.12	1,484	9,408	0.16
BGD-USA	1,892	2,330	0.81	13,036	15,648	0.83
BGD-CHN	1,505	2,134	0.71	2,943	3,989	0.74
BGD-DEU	1,152	714	1.61	7,348	4,867	1.51
BGD-THA	750	258	2.90	1,542	616	2.50
BGD-GBR	706	479	1.47	8,067	5,807	1.39
BGD-JPN	578	1,967	0.29	4,706	13,579	0.35
BGD-SGP	507	181	2.79	2,874	1,184	2.43
BGD-IDN	502	106	4.72	3,747	986	3.80
BGD-FRA	475	447	1.06	7,944	7,542	1.05
Average	**1,063**	**3,056**	**0.35**	**5,369**	**6,363**	**0.84**

[a]Actual to potential values.

Source: Authors' calculations.

As stated earlier, moving towards the potential value of intra-regional trade in South Asia would largely depend on how much India is able to bridge the bilateral trade gap with Pakistan on the one hand and Bangladesh on the other. For this to be possible, it must be shown that India's trade with both Pakistan and Bangladesh is currently the victim of biased policies either on one side or on both sides of the border. We can do this by showing that these three largest economies of the region exhibit better adherence to the gravity principle in the case of their trade with top global partners than in the two pairs of India–Pakistan and India–Bangladesh. Alternatively, the bias in intra-regional trade of these countries can

also be shown by way of the analysis of their intra- and extra-trade distances.

With the objective of tracing elements of bias in the two most important pairs of South Asian countries, we estimate the trade potential and the trade distance of India, Pakistan and Bangladesh with their top 10 global partners and compare the results with those of India–Pakistan and India–Bangladesh (Table 10). It is interesting to note that these three countries, even with their top 10 trading partners, under-utilise their trade potentials by a huge margin. India utilises only 36 per cent of its trade potential with its top 10 partners, followed by Bangladesh at 35 per cent and Pakistan at 21 per cent. However, when these figures are compared with the intra-regional trade utilisation in the pairs of India–Pakistan (2 per cent) and India–Bangladesh (12 per cent), it becomes amply clear that India's trade with Pakistan and Bangladesh suffers from strong policy bias. Encouragingly, Pakistan–Bangladesh shows a much stronger preference (92 per cent) for intra-regional trade.

The average trade distances of India and Pakistan with their top 10 trading partners is

Table 11. South Asia vis-à-vis other prominent trading blocs: trade potential and trade distance

Trading bloc	Trade pair	Actual trade (US$ million)	Potential trade(US$ million)	Ratio[a]	Actual distance (km)	Trade distance (km)	Ratio[a]
ASEAN[b]	IDN-MYS	12,536	5,336	2.35	1,307	629	2.08
	IDN-SGP	26,001	2,325	11.18	1,013	127	7.99
	IDN-THA	9,163	1,293	7.08	2,306	426	5.41
	MYS-SGP	40,229	17,634	2.28	506	250	2.02
	MYS-THA	16,433	2,309	7.12	1,283	238	5.40
	SGP-THA	19,396	695	27.92	1,436	82	17.58
	Average	**20,626**	**4,932**	**4.18**	**1,309**	**292**	**4.48**
ECOWAS[c]	GHA-NGA	496	169	2.94	773	305	2.53
	CIV-NGA	2,199	38	57.68	1,191	36	32.91
	Average	**1,348**	**104**	**13.02**	**982**	**171**	**5.76**
Mercosur[d]	ARG-BRA	23,994	16,855	1.42	2,392	1,765	1.36
	ARG-URY	1,725	674	2.56	530	235	2.25
	BRA-URY	2,348	757	3.10	2,168	817	2.65
	Average	**9,356**	**6,095**	**1.53**	**1,697**	**939**	**1.81**
NAFTA	CAN-USA	462,113	3579,893	0.13	2,079	12,105	0.17
	CAN-MEX	19,913	27,690	0.72	3,443	4,551	0.76
	MEX-USA	351,806	2107,502	0.17	2,468	11,508	0.21
	Average	**2,77,944**	**19,05,028**	**0.15**	**2,663**	**9,388**	**0.28**
SADC[e]	ZAF-AGO	1,952	120	16.30	2,580	234	11.01
South Asia	**Average**	**11,983**	**86,827**	**0.14**	**1,872**	**3,240**	**0.58**

[a]Actual to potential values.

[b]ASEAN members: Brunei Darussalam (BRN), Cambodia (KHM), Indonesia (IDN), Laos (LAO), Malaysia (MYS), Myanmar (MMR), Philippines (PHL), Singapore (SGP), Thailand (THA) and Vietnam (VNM).

[c]ECOWAS members: Benin (BEN), Burkina Faso (BFA), Côte d'Ivoire (CIV), Gambia (GMB), Ghana (GHA), Guinea (GIN), Guinea-Bissau (GNB), Liberia (LBR), Mali (MLI), Niger (NER), Nigeria (NGA), Senegal (SEN), Sierra Leone (SLE), Togo (TGO) and Cape Verde (CPV).

[d]MERCOSUR members: Argentina (ARG), Brazil (BRA), Uruguay (URY), Paraguay and Venezuela (VEN).

[e]SADC members: Angola (AGO), Botswana, Democratic Republic of Congo (COD), Lesotho (LSO), Madagascar (MDG), Malawi (MWI), Mauritius (MUS), Mozambique (MOZ), Namibia (NAM), Seychelles (SYC), South Africa (ZAF), Swaziland (SWZ), United Republic of Tanzania (TZA), Zambia (ZMB) and Zimbabwe (ZWE).

In ASEAN and MERCOSUR groups, only select pairs were considered for comparison. In SADC and ECOWAS groups, no other pairs featured in the top 100 world traders.

estimated at around 14,000 km and 10,000 km, respectively, much lower than their own bilateral trade distance of nearly 30,000 km. Similarly, the average trade distance of Bangladesh with its top 10 trading partners measured nearly 6,400 km, lower than its trade distance with India, at over 9,000 km. India, however, reported a lower trade distance with Bangladesh (9,000 km) than its average trade distance with its top 10 global partners (14,000 km) but still it stood multiple times higher than the geographical distance. It shows that, when the trade distance for intra-regional trade should be much lower than the overall average of top trading partners, the actual situation for India–Pakistan and India–Bangladesh is largely the opposite, indicating a strong bias against intra-regional trade in these pairs, which would certainly have cost implications on exports as well as imports, and hence on the overall welfare of these economies. This clearly endorses the fact that South Asian nations tend to impose more stringent barriers on intra-regional trade flows than their imports from the rest of the world. These barriers, coupled with weak trade facilitation measures at ports and poor transport infrastructure in carrying goods, make the cost of trading so excessive that South Asian countries are often more like distant trading partners than neighbours (Razzaque and Basnett 2014). It is, thus, imperative that bias in intra-regional trade in South Asia, especially in India–Pakistan and India–Bangladesh, is reduced by introducing strong trade promotion measures.

6.4 South Asia vis-à-vis some prominent trading blocs: trade potential and trade distance

In order to underline the need and scope for improvement in South Asia's intra-regional trade, we compare its trade utilisation and trade distance with prominent trading blocs of ASEAN, Economic Community Of West African States (ECOWAS), MERCOSUR (Mercado Común del Sur or Common Market of the South), NAFTA and the Southern African Development Community (SADC) (Table 11). South Asia, which utilises only 14 per cent of its potential trade, lags behind all the trading blocs. Its neighbouring group ASEAN shows actual trade exceeding potential trade by an average of over four times in selected cases. The samples of ECOWAS and SADC show actual trade exceeding potential trade by over 13 and 16 times, respectively. All samples in ASEAN, ECOWAS, MERCOSUR and SADC exhibit much higher levels of actual trade than potential trade. It is only in the case of NAFTA that the actual trade falls below potential trade by a huge margin.

A high level of trade utilisation has helped trading blocs reduce the intra-country trade distance and make it much lower than the geographical distance. For instance, in the case of ASEAN, the average trade distance stands at a mere 292 km in comparison with the geographic distance of over 1300 km. Similarly, for ECOWAS, the average trade distance comes to 171 km against a geographic distance of nearly 1,000 km. These blocs have arguably benefited from a reduction in trade distance by witnessing greater economic, political and cultural cooperation. South Asia, on the other hand, where trade distance measures much higher than the geographic distance, has undermined the opportunity of such cooperation in major trading partners. Enhancing greater trade cooperation in the region, especially between India and Pakistan and India and Bangladesh, is the need of the hour.

7. Conclusion

The economic–social–political payoffs from the integration of South Asia, which is the least integrated region of the world, are immense. To enhance the integration by way of trade, which opens myriad other opportunities, it is crucial that we know the major problem areas for approaching them in the most targeted and effective manner. With this objective in focus, the present study undertakes the estimation of two indicators of regional integration – potential trade and trade distance. There a few studies that have estimated the potential trade of the South Asia region but they are based on limited data and are outdated. Trade distance

as a measure of integration is attempted for the first time in the present study. A comparison of potential trade with actual trade and that of trade distance with geographical distance brings out the degree of integration in the region as a whole and across pairs of countries. The study uses the global (as opposed to the regional) gravity model, covering nearly 100 of the largest trading partners of the globe over a 12-year period from 2002 to 2013.

Empirical results from our study show that South Asia utilises only 14 per cent of its intra-regional trade potential and lags far behind many prominent trading blocs of the globe. Intra-regional annual trade potential measured US$87 billion against the actual trade of around US$12 billion, indicating a loss of trade of around US$75 billion per year during 2002–13. While there are many pairs of countries doing below potential trade in the region (just as many others are doing higher than their potential), India–Pakistan and India–Bangladesh have alone been causing a combined trade loss of US$79 billion per year. Our results attribute the trade loss in these two pairs to their bias against intra-regional trade.

Estimates of trade distance, our alternative measure of integration, also indicate low integration of the South Asia region. The average trade distance in pairs of South Asian countries turned out to be 3,240 km as compared with the actual distance of only 1,872 km. This is in contrast to the estimates of successful trading blocs such as ASEAN and ECOWAS, which have managed to reduce trade distance to far below their respective geographical distance, opening up the opportunity of greater cooperation in other areas too. The trade distance between India and Pakistan was nearly 30,000 km compared with the geographical-weighted distance of 1,238 km. Similarly, the trade distance between India and Bangladesh was over 9,000 km as against a geographical-weighed distance of around 1500 km.

Correction in the deficit of South Asia intra-regional trade, thus, essentially depends upon the narrowing of the trade gap in these two pairs of countries, which may, by way of spillover effects, also lead to greater integration in many other pairs of the region. This is, however, easier said than done in the wake of a persistently high level of political conflict, especially between India and Pakistan, a poor state of trade-related infrastructure and a lack of complementarity in trade basket. Therefore, measures have to be initiated on all fronts, especially in the direction of keeping political conflict away from trade relations. In fact, greater trade would lead to lesser political conflict and greater cooperation in other economic and non-economic areas. Political conflict in contiguous countries may not be abnormal [Diehl (1991), Vasquez (1995) and Stinnett and Diehl (2001)]. What is abnormal is the persistence and heightening of political conflict to such an extent that it negates the theory of gravity, which states that two countries in proximity trade more. Greater trade cooperation has arguably reduced the political conflict in many neighbouring countries (in ASEAN, for instance). Robst *et al.* (2006) argue that trade has a greater effect on conflict when countries are in proximity and mitigates the incentives for conflict that exist between them. There is no reason why the South Asia region, especially the trading pairs of India–Pakistan and India–Bangladesh, should continue to remain the exception to this.

References

Armstrong, SP (2007), 'Measuring trade and trade potential: a survey', *Asia Pacific Economic Papers,* No. 368.

Armstrong, S, P Drysdale and K Kalirajan (2008), 'Asian trade structures and trade potential: an initial analysis of South and East Asian trade', paper presented at the Conference on the Micro-Economic Foundations of Economic Policy Performance in Asia, 3–4 April, New Delhi.

Banga, R (2004), 'Impact of government policies and investment agreements on FDI inflows', *Working Paper No. 116*, Indian Council for Research in International Economics (ICRIER), New Delhi.

Banga, R (2014), 'Has South Asia benefited from growth in India', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Banga, R and MA Razzaque (2014), 'Building regional supply chains in South Asia: the case of the textiles and clothing sector', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Basher, MA (2014), 'Indo–Bangla trade: composition, trends and the way forward', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Bhagwati, J (1993), 'Regionalism and multilateralism: an overview' in J de Melo and A Panagariya (Eds.), *New Dimensions in Regional Integration*, Cambridge University Press, Cambridge, 22–51.

Chatterjee, B and J George (2014), The Cost of Economic Non-Cooperation in South Asia In: Razzaque, MA and Y Basnett eds. *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London pp. 58–75.

Dayal, P, A Das, R Banga, K Iyengar and S Ahmed (2008), *Quantification of Benefits from Economic Cooperation in South Asia*, a report of ADB & UNCTAD, Macmillan India Ltd, New Delhi.

De, P (2014), 'Connectivity and regional co-operation in South Asia', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Diehl, P (1991), 'Geography and war: a review and assessment of the empirical literature', *International Interactions*, Vol. 17, 11–17.

Drysdale, PD, Y Huang and K Kalirajan (2000), 'China's trade efficiency: measurement and determinants', in P Drysdale, Y Zhang and L Song (Eds.), *APEC and Liberalisation of the Chinese Economy*, Asia Pacific Press, Canberra, 259–71.

Frankel, JA and S Wei (1995), 'European integration and the regionalization of world trade and currencies: economics and politics', in B. Eichengreen *et al.* (eds.), *Monetary and Fiscal Policy in an Integrated Europe*, Springer, New York.

Frankel, JA, E Stein and SJ Wei (1997), *Regional Trading Blocs in the World Economic System*, Institute for International Economics, Washington, DC.

Hummels, D (1999), 'Toward a geography of trade costs', GTAP Working Papers, Purdue University, West Lafayette.

Kalirajan, K (2000), 'Indian Ocean Rim Association for Regional Cooperation (IOR-ARC): impact on Australia's trade', *Journal of Economic Integration*, Vol. 15, 533–47.

Krugman, P (1991), 'The move to free trade zones', in *Policy Implications of Trade and Currency Zones*, symposium sponsored by Federal Reserve Bank, Kansas City, 7–41.

Limao, N and AJ Venables (2001), 'Infrastructure, geographical disadvantage, transport costs, and trade', *World Bank Economic Review*, Vol. 15, 451–79.

Mayer, T and S Zignago (2006), *Notes on CEPII's Distances Measures*, Centre d'Études Prospectives et d'Informations Internationales (CEPII), Paris.

Moinuddin, M (2013), 'Fulfilling the promises of South Asian integration: a gravity estimation', *ADBI Working Paper Series*, Asian Development Bank Institute, No. 415, April.

Panagariya, A (1995), 'Rethinking the new regionalism', presented at the World Bank Conference on Trade Expansion Program, 23–24 January.

Pigato, M, C Farah, K Itakura, K Jun, W Martin, K Murrell and TG Srinivasan (1997), *South Asia's Integration into the World Economy*, World Bank, Washington, DC.

Raihan, S and MA Razzaque (2014), 'Assessing gains from SAFTA', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Razzaque, MA and Y Basnett (2014), 'Regional integration in South Asia: an overview', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Redding, S and AJ Venables (2004), 'Economic geography and international inequality', *Journal of International Economics*, Vol. 62, 53–82.

Robst, J, S Polachek and Y-C Chang (2006), 'Geographic proximity, trade and international conflict/cooperation', *IZA Discussion Paper* No. 1988, Institute for the Study of Labor (IZA), German, February.

Sajal, L (1998), 'Controversy: regionalism versus multilateralism', *The Economic Journal*, Vol. 108, 1126–7.

Sattar, Z (2014), 'Tariff and non-tariff barriers in South Asia trade: a Bangladesh perspective' in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Sawhney, A and R Kumar (2008), 'Rejuvenating SAARC: The strategic payoffs for India', *Global Economy Journal*, Vol. 8, Issue 2.

Srinivasan, TN (1994), *Regional Trading Arrangements and Beyond: Exploring Some Options for South-Asia: Theory, Empirics and Policy*, Report No. IDP-142, South–Asia Region, World Bank, 1–40.

Srinivasan, TN and G Canonero (1995), 'Preferential trading arrangements in South Asia: theory, empirics and policy' (unpublished).

Stinnett, DM and PF Diehl (2001), 'The path(s) to rivalry: behavioral and structural explanations of rivalry development' *Journal of Politics*, Vol. 63, 717–40.

Taneja, N, S Prakash and S Bimal (2014), 'Tariff and non-tariff barriers to trade in South Asia: an Indian perspective', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.

Tinbergen, J (1962), *Shaping the World Economy: Suggestions for International Economic Policy*, Twentieth Century Fund, New York.

Vasquez, J (1995), 'Why do neighbours fight? Proximity, interaction, or territoriality', *Journal of Peace Research*, Vol. 32, 277–93.

World Development Indicators (2014), The World Bank, Washington, DC.

World Bank (2010), *South Asia Economic Update 2010: Moving Up, Looking East*, The International Bank for Reconstruction and Development/World Bank.

Zaman, A (2014), 'The promise and potential of trade between Pakistan and India', in MA Razzaque and Y Basnett (Eds.), *Regional Integration in South Asia: Trends, Challenges and Prospects*, Commonwealth Secretariat, London.