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Identification of Indo-Pak Trade Patterns in Post-SAFTA Regime through Ratio Analysis Technique

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The main aim of this paper is to analyze the Indo- Pak trade patterns and trade creation or trade diversion effect in the post-SAFTA regime. Based on time-series data from 2005 to 2015, a ratio analysis approach has been used to investigate trade flows and its effect between Pakistan and India. The ratio of regional trade independence, comparative advantage, trade complementariness, and regional orientation were applied. The main finding of this work is that a large amount of trade potential between Pakistan and India remained untapped. Both economies are trading more with large economies, as a result, they are paying a large amount of transaction cost and are not availing benefits of regionalism due to many political and military conflicts. The paper concludes that in order to unleash trade potential between Pakistan and India both countries have to adopt liberal trade policies, abolish their non-tariff barriers and decrease political and military tension in order to gain welfare effects of trade liberalization. The work is an attempt to estimate and analyze trade potential of between Pakistan and India. Which will provide policy guidelines and highlight potential markets for future investments.

Key words: *Trade; trade Liberalization; Regional Trade Agreements; SAFTA*

1. Introduction

Empirical work and discussions about economic relationships have stressed the importance of bilateral trade, regionalism, and liberal trade policies. The rapid increase in the creation of regional trade agreements (RTA) and blocs has raised questions about their impact on the number of trade patterns and investment. The wave of increased regionalism has pushed countries towards economic integration. In theory, the net welfare effect of regional integration remained ambiguous (Viner, 1950). Since its independence Pakistan has followed a very fluctuating foreign trade policy, due to constraints of developing close ties with world powers. However with the passage of time reliance on the US has been replaced with China, additionally the rigid approach of aggression with India had also been replaced by the more pragmatic approach of dialogue and increased economic integration (Sheraz. 2018). The current export patterns of Pakistan require serious transformation and major trade policy modification specifically increasing close trade ties with its neighboring countries. The agriculture and industrial sector are significantly contributing to the GDP, employment, investment, exports and adding value to the industry (Yasmin & Altaf, 2014). Therefore, the country has the potential to export its major agricultural and industrial products. Pakistan has close ties with China, but trade ties with India are currently restricted due to many reasons. The Pak-India trade is less than 1 % of India's international trade. However, the amount of informal trade and the third world trade volume suggests a tremendous potential for bilateral trade between Pakistan and India. Restrictions on official trade between these countries compel both countries to import certain products from far off sources, which they can easily import from each other. As, increase in bilateral trade would ensure low transportation cost, cheaper raw materials and insurance costs which will enhance the quality of goods and their availability at competitive prices for both countries. While consumers would gain in terms of lower prices, higher purchasing power and greater choices of trade goods and manufacturers will have access to the wider markets in the neighborhood. The Government would have revenue gains by bringing informal trade into the formal channel. Ultimately, this would result in a win-win situation for everyone. Trade-in Electricity between both the Countries will also help in reducing problems associated with electricity load shedding.

1.1 Indo Pak Trade Patterns

The bilateral trade balance at present is heavily in favor of India. Since, 1975 when the Trading Corporation of Pakistan, a state-owned company, was allowed to import 40 commodities, Pakistan has gradually increased the number of commodities permitted to be imported from India. It was only in 1982 that private corporations in Pakistan were allowed to import from India. Pakistan started trading with India based on the positive list approach which included the approved imports from India. Trade started picking up corresponding to the number of commodities in the positive list, which reached 571 items by 1989 (Khan, 2013).

At present investment, flows from Pakistan are not allowed into India. In addition, no Indian investment has been done in Pakistan. There exists a large potential for cross border investments. India and Pakistan have common multinational companies operating in their countries. These can act as meaningful conduits for trade and investment. Pakistan, India relations continue to be tense despite efforts from both sides for their normalization (Nazir, 2005). Both countries have analysed the foreign policy problems of their citizens and also different factors which have affected the foreign policy of both countries. It is also tragic that both countries are neighbors, but they consider themselves their enemies. Additionally, both countries are charged with elements such as nationalism, prejudice' bigotry' and religious hostility since independence Choudary (1975). The trade relations were suspended by the end of 1949 and at the beginning of the 1950s, but after one year in 1951 the Pakistan currency worth was accepted by India and trade agreements were restored (Bhutto 1972). Due to the war of 1965, trade relations between both countries were suspended, but again in 1966-67 trade relations were restored, after signing the Tashkent pact by the leaders of both countries. Although the scope of bilateral trade was limited at that time, these trade relations were again suspended due to the war of 1971, but normalized in 1972 after Shimla pact. In 1975 a trade agreement was signed between both countries, also railway corridors were established. In 1988 after nuclear testing by both countries the trade relations harmony was disturbed. The trade relations were again suspended in 2002, when India accused Pakistan of an attack on its parliament in December 2001. After the withdrawal of Indian troops in 2002 these relations were again restored (Mitra & Pahariya, 2008). In 2011 improved relations were witnessed due to dialogue between India and Pakistan leaders. The reason for improving relations might be increased globalization, which promoted regional economic integration and co-operation in the region. Increased bilateral trade was initiated by the business communities off both nations (Askari, 2012).

Both nations are trying to take steps in the form of bilateral Composite Dialogue to improve economic and political relations. For this reason, both countries SAFTA (South Asia Free Trade Agreement) be operational in 2006 and fully until 2015 (Baroncelli, 2007). In 2012 both countries decided to cooperate in custom and recognition of standards, Pakistan also announced to open trade in 6800 fields, previously banned. Visa policies were also relaxed from both sides the same year. A mutual agreement was also made for business travelers for the improvement of economic partnership (Siddique, 2013). Tabish and Khan (2011) appreciated that these efforts will help in confidence-building between these two countries and will open avenues for free trade and also decrease cross border tensions. The study by Saleem, Jabeen, Omer, and Hanan (2014) for normalization of trade ties between Pakistan and India showed there is a need for confidence-building measures for enhancing trade volumes. These measures may include strategies for combating terrorism, fruitful negotiation on Kashmir dispute and an uninterrupted dialogue for solving water disputes and civil society may have contact between two states.

Table 1 shows the trade share of Pakistan and India. The table suggests that the trade balance was highly in favor of India.

Table 1. Pakistan India Trade Share Analysis

Period	Pakistan Exports to India	% Share in Pakistan Total Exports	Pakistan Imports from India	% Share in Pakistan total imports	Total Imports Trade Balance with India
1994-95	41.60	0.51	63.99	0.62	-22.39
1995-96	40.74	0.47	94.50	0.80	-53.76
1996-97	36.13	0.43	204.66	1.72	-168.53
1997-98	88.97	1.30	153.41	1.52	64.4
1998-99	174.72	2.25	145.60	1.54	29.12
1999-2000	53.65	.63	127.35	1.24	-73.70
2000-01	55.40	.60	235.09	2.19	179.69
2001-02	49.20	0.54	186.50	1.80	137.30
2002-03	70.70	.63	166.50	1.36	95.80
2003-04	93.70	.76	382.40	2.45	288.70
2004-05	288.20	2.00	548.20	2.66	260
2005-6	32.67	1.92	111.4	3.88	-78.73
2006-7	29.16	1.64	126.6	3.99	-97.44
2007-8	35.46	1.74	169.1	3.42	-133.64
2008-9	23.53	1.34	108.0	4.15	-84.47
2009-10	27.49	1.28	155.9	3.69	-128.41
2010-11	27.28	1.07	160.7	3.59	-133.42
2011-12	34.79	1.41	157.2	4.28	-122.41
2012-13	40.27	1.6	187.4	4.43	-147.13
2013-14	39.22	1.58	210.4	3.8	-171.18
2014-15	31.28	1.413	166.9	3.5	-135.62

Source: Pakistan economic survey trade map

Major Issues in Pak- India Trade

Pakistan and India are two important nations in Southeast Asia. Despite export potential on both sides of the border, there is insignificant trade between both countries. There are many impediments to trade, which had to be removed for the development of the total region. The

manufacturers are circumspect and cautious about the trade liberalization within India whereas, traders are confident and hopeful of improving trade relations with India. Whereas, Engelken (2013) Taneja et al. (2011) Saleem, Jabeen and Hanan (2014) suggest granting Most Favorite Nation (MFN) status to India. Informal Trade (Taneja et al, 2011; Acharya and Marwaha, 2012; Nakhoda, 2016; Husain, 2017). Trade barriers between Pakistan and India include Non-Tariff Barriers. (Taneja. et al, 2011; Acharya and Marwaha, 2012; Adil, 2016), Land Route Restriction (Husain, 2017; Acharya & Marwaha, 2012), Visa Restrictions (Taneja et al, 2011; Khalid, 2012). Political Tensions (Taneja et al., 2011; Masood, 2014; Nakhoda (2016), restriction on FDI's, Inefficient Telecommunication Channels, Payment and Dispute Resolution System (Taneja et al., 2011), Information Gap (Khalid ,2012). The main purpose of this work was to analyses Indo-Pak trade patterns for the post-SAFTA regime. This work will help to identify intra-regional trade potential between Pakistan and India, investigate the comparative advantage, regional orientation and export similarity of Pakistan India trade flows. The work will also try to ascertain the current position of trade patterns between Pakistan and India. As the time period selected specifically to analyze post-SAFTA trade condition of both countries. Based upon the results this work will provide a guideline for future policy development. It will also help investors to find future prospects in both countries. The current work will also update the research already available in this field. The remainder of the paper includes. Section 2 literature review and analysis of trade patterns between Pakistan and India. Section 3 explores different trade-related ratios for the Indo-Pak trade performance. Section 4 will conclude the whole paper.

Literature Review

During the last five decades, there has been a rapid transformation in the trade policy of developing countries. The transformation into a more liberal trade policy regime was prompted by many internal and external factors. The development of the General Agreement on Tariffs and Trade (GATT) and World Trade Organization (WTO) in 1947 and 1995 respectively act as a driving force in this development. After that major quantitative barriers- tariff and nontariff barriers were reduced or eliminated (Santos-Paulino, 2005). Regional integration and trade liberalization results into the emergence of new competitors, the former will result in repositioning of different industries to face international pressure; the later will aspire them to maintain a sustainable position at international level. There is a great deal of empirical and theoretical discussion on trade liberalization and its impact on the economic growth of the country during the last few decades. But, still, there is no consensus that whether to increase liberal trade stimulates economic growth. The theory of comparative advantage suggested by Ricardo (1817) refers to the country's ability to produce goods at lower opportunity cost and trade with another county which will further specialize and produce the importing country in good in which it has abundant factor endowment. The resultant productivity will increase exports and ultimately boost economic growth. Krueger (1978) and Bhagwati (1978) contributed and argued that the trade liberalization efforts enable sectors having economies of scale to specialize and increase production efficiency for the long run. A positive and

significant relationship between liberal trade policies and economic growth due to international technology diffusion was suggested by different growth and endogenous (Coe &Helpman, 1995; Grossman &Helman, 1991a; Romer, 1994). Edwards (1998) identified that cost of imitation also has a significant impact on this relationship, in case imitation cost is lower in poorer countries as compared to advanced developed countries than the poorer country will tend to grow more rapidly than advanced countries and have a rapid tendency toward convergence. These arguments clearly suggest that trade liberalization is more beneficial for developing economies, as it enables them to trade with technologically advanced countries. Licandro (2010) developed the two countries endogenous growth model and suggests that liberal trade policies enhance price reduction, production, competition, and innovation. The decrease in trade barriers increases economic growth as the domestic firms market power reduces. Hammouda & Jallab (2011) contributed to this debate from an African perspective and suggest that relationship between economic growth and trade liberalization should be studied from comparing development experiences of Africa and Asia and should find the optimal combination of control and liberalization policies for promoting growth and competitiveness in developing economies. Sabandi (2015) worked on the Indonesian economy from 1990 to 2014 and suggested a positive relationship between trade liberalization and economic development.

Adeel-farooq, Bakar, and Raji (2017) analyzed trade patterns between Pakistan and India to find the impact of trade openness and financial liberalization on the economic development of both countries, as both countries share common characteristics, adopted restrictive and relaxed financial and trade policy almost the same time period. Their results support shows a positive and significant relationship between trade openness and economic growth. However, Almeida and Fernandes, (2008) opposes this argument and suggest that if countries are specialized in industries where research and development are not core activities trade liberalization will have no impact on economic development. Additionally, trade composition of goods (Haussmann et al., 2007; Kali, Méndez, & Reyes, 2007) and the ease of technology adaptation and mastering into the domestic environment also plays a significant impact of whether trade liberalization impacts economic development (Grossman & Helpman, 1991b). We are living in an age of globalisation and information technology, which is adorned with an age of MNCs, which need cooperation both at the international and regional level therefore where bilateral relations are very important (Ahmed, 2004) Pakistan and India are the two largest and populous economies of the South East Asian. However, the bilateral trade remains negligible and both are not in the category of each other's top trading partner (Acharya & Marwaha, 2012).

Khan (2013) surveyed different chamber of commerce of different cities of Pakistan and suggested that they were positive about trade with India and recognize it as a major opportunity. Many of the members have traded with India without any hurdles at the individual level for several years. They are skeptical of the free trade with India due to entrepreneurial weakness. They identified that for the successful implementation of SAFTA as a strategic bloc, trade relation between India Pakistan is very critical. The private sector of Karachi was also of the

view that regional trade will be successful if ties between India and Pakistan improve. Khan's (2013) study gave an estimate that in the case of normal trade relation, the trade could eventually increase almost 20 times its current levels, which is $2.5 billion will be increased to $50 billion if normal trade relation is restored in the next five years it will cross to $6 billion to $10 billion.

3. METHODOLOGY AND RESULTS

Data

The study investigates Indo-Pak trade patterns. For this purpose, panel data of five industries from India and Pakistan were selected based on purposive sampling. The industries selected were agriculture, sugar, sugar confectionaries and inorganic chemicals, and textile, edible fruits and nuts for the period 2005 to 2015.

Ratio Analysis of Trade Indicators

The ratio analysis is the first step toward trade policy analysis, they help an analyst to have an idea about the general pattern of trade. The following Ratios will be calculated:

Indicators of Regional Trade Interdependence

These include the type of ratio and includes:

1. Intraregional Trade Share (ITS)
2. Intraregional Trade Intensity (ITI)
3. Regional Trade Introversion Index (RTII)
4. Revealed Comparative Advantage. (RCA)
5. Regional Orientation Index (ROI)
6. Complementarity Index (CI)

Ratio Analysis

Ratio analysis was used to access the current trade patterns of India Pakistan. The ratio calculated includes an indicator of regional trade interdependence. These ratios are helpful in measuring the current situation of trade pattern and trade interdependence between different partners or regional groups. For each indicator, a higher value indicates the lowest trade cost in the proposed region and vice versa. The first ratio used was IRTS, which helps to identify the ratio between countries to the total trade of countries. This ratio shows the importance of relative trade importance of trade between countries compared to trade with other countries of the world. The ratio was calculated as under:

ITS= Tii/Ti

Where
Tii = exports from India to Pakistan plus imports from Pakistan to India
Ti= total exports from India Pakistan to imports from India to the world.

Source: Anderson and Norheim (1993)

The second ratio applied was ITI, which was used to measure the intra-regional share of trade between countries with the world trade share. This ratio helps to measure the trade intensity within the region; the calculation method is given below:

ITII= (Tii/Ti) / Ti/Tw)

In the above formula:

Tii = exports from India to Pakistan plus imports from Pakistan to India
Ti= total exports from India Pakistan to imports from India to the world.
Tw= world total exports plus world total imports.

Source: Anderson and Norheim (1993)

The third ratio RTI was introduced by Lapadre (2006) to measure relative intensity trading within the region compared with outside the region. The range of this ratio is between -1 to +1. In this index, intraregional trade intensity (HIi) and extra-regional trade intensity (HEi) are functions of the region ‘s share of outsider ‘s total trade and not of world trade as in the previous trade intensity index. The significance of this index is that it increases or falls if the intra-regional trade intensity increases or falls. The zero indexes show that trade in the region is neutral. More than zero suggest an intra-regional bias and less than zero suggest extra-regional biasness. The formula for the ratio is given below:

RTI= [HIi – HEi] / [HIi + HEi]
HIi = (T ii / Ti)/ (TOi / TO) and HEi = [1 – (T ii / Ti)]/ [1 – (TOi / TO)]
Tii = exports of region i to region i plus imports of region i from region i
Ti = total exports of region i to the world plus total imports of region i from the world
TOi = exports of region i to outsiders plus imports of region i from outsiders
TO = total exports of outsiders plus total imports of outsiders

Source: Anderson and Norheim (1993)

Table 2. Indicators of Regional Trade Interdependence

Years	IRTS	ITI	ITII
2005	0.0026	0.1981	-0.534
2006	0.0043	0.3055	-0.364
2007	0.0045	0.3010	-0.370
2008	0.0038	0.219	-0.5164
2009	0.0035	0.17607	-0.5761
2010	0.0040	0.19465	-0.546
2011	0.0024	0.10558	-0.7233
2012	0.00251	0.10841	-0.7246
2013	0.0029	0.12556	-0.668
2014	0.00317	0.1399	-0.642
2015	0.0033	0.14950	-0.6261

In order to calculate the ratio for the analysis of Pakistan and India trade, import and export trade patterns of both the countries were collected from the World Integrated Trade Solution website. Table 2 shows the result of the three ratios, the first ratio of IRTS shows a very low value for intra-regional trade that future trade will be costly between Pakistan and India. The second ratio of ITI suggests that the results are less than one for all the years analyzed and suggest that collective trade of Pakistan and India is not very significant in the world. The ratio of ITII gives negative values for all the years, which suggest an extra-regional bias.

Revealed Comparative Advantage (RCA)

This index is used to measure the comparative advantage or disadvantage of a country in certain good or commodities as evident from their trade flows. Greater than one index shows that a country has a comparative advantage in that particular commodity. Less than one shows that the country has a comparative disadvantage in a particular industry or commodity. The index is basically based on the Ricardian concept of comparative advantage. The Balassa index, was introduced by Balassa and Noland (1965).

Table 3. Pakistan RCA In Different Industries (2005-2015)

Years	Textile and clothing	Inorganic chemicals	Agriculture and food	Sugar and sugar confectionaries	Edible fruits and nuts
2005	12.19986788	0.011182403	0.886568216	0.391356	0.21374675
2006	1.800507068	0.007316976	0.107585243	0.32513	0.218774133
2007	1.537538842	0.011557349	0.093277336	0.191035	0.193151313
2008	1.352495585	0.009154169	0.093069971	0.641579	0.180488336
2009	0.113781829	0.020076075	0.121296887	0.226325	0.210865109
2010	1.16974749	0.017806939	0.109582087	0.134215	0.228862081
2011	1.179694603	0.016146905	0.114114209	0.074267	0.213983332
2012	1.282794514	0.017214019	0.143838738	0.305178	0.244280502
2013	0.945519744	0.014845189	0.094006516	0.687603	0.245051719
2014	0.976714486	0.013816969	0.09976181	0.559709	0.240775395
2015	1.1309761	0.01309876	0.077615022	0.555661	0.248608714

Table 3 presents the results of RCA of different industries of Pakistan. The results suggest that the textile and clothing industry of Pakistan performed very well in 2005 with the RCA of more than 12, but the performance was declining after that. The industry remained competitive with the RCA of more than one, but in the year 2009, 2013 and 2014 it lost its competitiveness then regained it in 2015. In the inorganic chemical industry, the result showed Pakistan is not at all competitive in this sector with the RCA of less than one in all the years under study. In the agriculture and food industry, the RCA results show that the country is not competitive in all the years. The same results were found in sugar and the edible fruits and nuts industries.

Table 4. Indian RCA in different industries (2005-2015)

Years	Textile and Clothing	Inorganic Chemicals	Agriculture And Food	Sugar and Sugar Confectionaries	Edible Fruits and Nuts
2005	3.2398	1.08829	0.74681	0.310	1.822
2006	3.164	1.005	1.0628	2.280	1.59
2007	3.002	0.7257	1.2636	3.352	1.350
2008	2.877	0.8578	1.2028	4.1703	1.408
2009	0.258	0.6829	0.8223	0.1939	1.0730
2010	2.733	1.37520	1.26679	1.586	0.98027
2011	2.898	0.603	1.0846	2.312	0.997
2012	3.244	0.855	1.329	2.630	0.9760
2013	2.779	0.654	1.4089	1.280	0.9460
2014	2.737	0.701	1.19516	1.664	0.9254
2015	3.253	0.706	1.1673	2.181	0.888

Table 4 shows the results of RCA of different industries of India. The results suggest that India remained competitive in the textile industry and is able to sustain that position consistently. In the inorganic chemical industry the result showed that in 2005 and 2006 the country gained the comparative advantage, but, lost this advantage in 2007, 2008 and 2009, then regained its competitive advantage in 2010, but was not able to sustain that position for the rest of the year. The Indian agriculture and food industry has gained competitive advantage except for the years 2005 and 2009. The Indian sugar industry performance was not very good in 2005, but it gained a competitive advantage in all the other years except for 2009. The edible fruits and nuts industry was very competitive from 2005 till 2009, but lost its competitiveness afterward.

Regional Orientation (RO)

The RO suggests Regionally orientation of certain goods towards certain regions as compared to other regions. This ratio is composed of two shares. Firstly, the numerator comprises of the share of Pakistan's exports of the product to the India of interest in Pakistan's total exports. The denominator is the share of Pakistan's exports of the product to other countries in the country's total exports to other countries. If the value is more than 1, it indicates regional bias of the country of exports of a particular product, and if it is less than 1 then the country has no regional bias.

This ratio along with RCA helps to identify trade diversion or trade creation after signing of particular free trade agreement. If t the country's RCA value is less than 1and regional trade

orientation is more than 1, than the Free Trade Agreement will cause trade diversion. In order to calculate this ratio following formula was used:

ROI = (Xcgr /Xcr) /= (Xcgr-r /Xcr-r)

where,
Xcgr = exports of industry g by Pakistan to India
Xcr = total exports of Pakistan to India
Xcg-r = exports of the industry by Pakistan to countries other than India outside the region.
Xc-r = total exports by industry to countries outside region r.

Table 5 ROI of Pakistan Trade with India

Years	Textile and clothing	Inorganic chemicals	Agriculture and raw material	Sugar and sugar confectionaries	Edible Fruits and Nuts
2005	0.376458	2.175228	0.153576978	0.038992937	1.070690663
2006	0.587415	2.575442	0.193724062	0	1.130426178
2007	0.715578	2.585833	0.394914521	0.000445144	1.293644439
2008	0.582185	3.700594	0.833790596	0.000105745	1.20357144
2009	0.754948	4.938663	0.507118028	7.89176E-06	1.495324575
2010	0.701312	13.72702	0.630414975	4.66306E-05	1.057766374
2011	0.592769	8.737964	0.508389842	0	1.173298966
2012	1.059816	8.814037	2.616727602	0.043779344	1.19532067
2013	0.656831	6.187145	1.66693942	0.201083335	1.075996514
2014	0.75762	6.476042	2.044687384	0.002726624	0.936291214
2015	0.762191	8.027761	2.461542433	0.000189261	1.199186501

Table 5 suggests that the regional orientation of Pakistan and India in textile and clothing industries shows a value less than 1 for all the years except for 2012. In inorganic chemicals, the value is more than 1 for all the year. The agriculture industries show value less than 1 from 2005 to2011, after that, it shows that value more than 1, for sugar and sugar confectionaries the value is more than 1 in 2009 and 2010., for the remaining years it showed a value less than 1. Inedible fruits and industries, the value at more than 1 for all years except for 2014.

Trade Complementarity Index (TCI)

This index helps to measure the degree to which the export pattern of one country is similar to the import pattern of the other country. The value ranges from 0 to 1, which shows no overlapping and 1 suggests a perfect match of trade pattern. A high index suggests favorable prospects for future arrangement. The formula for measuring this index was as follows:

$$1 - \left[\sum_{\partial} abs \frac{\left(\frac{Mrg}{Mr}\right) - \frac{Xcg}{Xc}}{2} \right]$$

Mrg = imports of good g by region r
Mr = total imports of the region
Xcg = exports of good g by country c
Xc = total exports by country c

Table 6 TCI of Pakistan and India

Years	Textile and clothing	Inorganic chemicals	Agriculture and raw material	Sugar and sugar confectionaries	Edible Fruits and nuts
2005	0.062341	0.994337	0.932656	0.81459	0.909904
2006	0.099783	0.996291	0.946416	0.835168	0.909733
2007	0.197461	0.993885	0.951626	0.898937	0.918265
2008	0.239232	0.99484	0.949128	0.634793	0.912764
2009	0.926747	0.98658	0.9148	0.8376	0.869108
2010	0.15164	0.988523	0.921041	0.901818	0.849774
2011	0.020782	0.987915	0.905713	0.938056	0.832965
2012	0.00392	0.987829	0.892044	0.762289	0.826493
2013	0.166719	0.988118	0.919036	0.410563	0.799541
2014	0.189156	0.989636	0.919783	0.531751	0.811011
2015	0.099596	0.990635	0.940663	0.555161	0.812165

Table 6 shows the results of the trade complementarity index. The trade complementarity index was high for all the industries except for the textile and clothing industry.

DISCUSSION AND ANALYSIS

The ratio analysis is the first step toward trade policy analysis; they help an analyst to have an idea about the general pattern of trade.

The first ratio applied was the ITR, which shows a very low value for intra-regional trade between Pakistan and India for all the industries, suggesting a costly future trade between the two countries. The second ratio applied was the intra-regional trade intensity which suggests that the results are less than one in all the years analyzed and suggests that collective trade of Pakistan and India is not very significant in the world. The ratio of ITII gives negative values

for all the years, which suggest an extra-regional bias. The third index used was RCA to measure the comparative advantage or disadvantage of a country in certain good or the commodities measuring of its trade flows. The results of the ratio when applied to Pakistani industries suggest that the textile Pakistan performed very well in 2005 with RCA of more than 12 but the performance was declining after that. However the industry remained competitive with RCA of more than one, in the year 2009, 2013 and 2014 it lost its competitiveness but regain it in 2015. In the inorganic chemical industry, the result showed Pakistan is not at all competitive in this sector with RCA of less than one in all the years under study. In the agriculture and the food industry, the RCA results show that the country is not competitive in all the years. The same results were found in sugar and edible fruits and nuts industries. Mehmood (2004) also applied RCA indices to Pakistani nonagricultural products from 1990 to 2000 and found that except for 1999-2000, 20 out of top 25 product lines were from textile and clothing sector in 1999 and 2000 18 and 19 respectively were from textile and clothing. RCA was relatively stable during the entire period under study, this was due to its consistency in natural climate and human resource available in the country. The analysis reveals 0. the failure of Pakistan to upgrade its technology in the value chain. The country has not moved from low-value-added products to technology-intensive high-value products.

In the case of India, this ratio suggests textile industry be highly competitive, which in textile industry and is able to sustain that position consistently, for the whole period under consideration. In the inorganic chemical industry, the result showed that in 2005 and 2006 the country had a comparative advantage, but lost this advantage in 2007, 2008 and 2009, but regained its competitive advantage in 2010 but was not able to sustain that position for the rest of the years. The agriculture and food industry in India has gained competitive advantage except for the year 2005 and 2009. The country's performance in the sugar industry in 2005 was not very good, but it gained a competitive advantage in all the other years except for 2009. The edible fruits and nuts industry was very competitive for 2005 till 2009 but lost its competitiveness afterwards.

Conclusion

The paper tries to analyze the Indo-Pak trade patterns and trade creation or trade diversion effect in the post-SAFTA regime. Based on panel data from 2005 to 2015, a ratio analysis approach was used to investigate trade flows and its effect between Pakistan and India. The ratio of regional trade independence, comparative advantage, trade complementariness, and regional orientation were applied. The main finding of this work shows a very low value and costly intra-regional trade between Pakistan and India for all the industries, additionally, the ratio of intra-regional trade intensity suggests a least collective trade of Pakistan and India in the world. The ratio of intra-regional trade introversion suggests an extra-regional bias. The ratio of RCA suggests that the textile industry be inconsistently competitive. The agriculture, inorganic chemical, sugar, and edible fruits and nuts were not competitive. The textile industry of India was highly competitive. In the inorganic chemical industry, agriculture, sugar and

sugar confectionaries and edible fruits and nuts industries were inconstantly competitive from 2005 to 2015. This shows that a large amount of trade potential between Pakistan and India remained untapped. Both economies are trading more with large economies, as a result, they are paying a large amount of transaction cost and are not availing benefits of regionalism due to many political and military conflicts. The paper concludes that in order to unleash trade potential between Pakistan and India both countries have to adopt liberal trade policies, abolish their non-tariff barriers and decrease political and military tension in order to gin welfare effects of trade liberalization. The study is an attempt to estimate and analyze trade potential of between Pakistan and India. Which will provide policy guidelines and highlight potential markets for future investments.

Compliance with ethical standards

Ethical Approval: All the authors declare that there is no conflict of interest regarding to this manuscript.

Consent to publish. We have read the author's guide, rules, and ethics for publication in International Journal of Innovation Creativity and Change. All authors agree for the manuscript to be published in Environmental Science and Pollution Research International Journal of Innovation Creativity and Change.

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REFERENCES

Acharya.L., Marwaha. A.(2012). Status on India Pakistan-Bangladesh economic relation, FCCI., *Bangladesh Bank.* Central bank of Bangladesh.

Adeel-farooq, R. M., Bakar, N. A. A., & Raji, J. O. (2017). Trade openness, financial liberalization and economic growth The case of Pakistan and India. *South Asian Journal of Business Studies*, *6*(3), 229–246.

Askari, H. M. (2012, June). New opportunities in Pakistan-India trade? The Daily Dawn. Retrieved from http://www.dawn.com.

Baroncelli, E. (2007). The 'Peace dividend', SAFTA, and Pakistan-India trade. The Challenges and Potential of Pakistan-India Trade, 59.

Bhutto, Z.A. (1972). Reshaping foreign policy 1948–1966 – a collection of articles, statements, and speeches. Rawalpindi: Pakistan Publications.

Choudhury, G.W. (1975). Pakistan's Relations with India (1947-1966). London Pall Mall Press Ltd.

Hammouda, H. Ben, & Jallab, M. S. (2011). Trade Liberalization and Development: Lessons for Africa. *Journal of World, Investment and Trade*.

Hussain (2017). Tarrif trade and taxation. Dawn. July .2017.

Khan, S. H. (n.d.). Why E-Commerce Remains Unsuccessful in Pakistan?, 1–12.

Khan. (2013). M. India-Pakistan Trade relations: A new beginning. New American foundation. Reterived from: www.indiapakistantrade.org.

Khalid.S. (2012). Bilateral Trade Between Pakistan and India. Retrieved fromwww.rcci.org.pk/wp-content/uploads/2012/12/pibt

Licandro, O. (2010). Trade Liberalization , Competition and Growth, (February).

Mitra,S., & Pahariya, N.C. (2008). Managing conflict through trade: The case of Pakistan and India of peace and trade dividends: The case of Pakistan and India. In SDC Anthology (Ed.), Peace and sustainable development in South Asia: Issues and challenges of Globalization. Sustainable Development Policy Institute Islamabad. Pakistan.

Nazir, M. (2005). The political and strategic dimensions in Indo-Pak relations (1998- 2004). Pakistan vision.

Ricardo, David (1817), On the Principles of Political Economy and Taxation,

Sabandi, M. (2015). The Effects of Trade Liberalization , Financial Development and Economic Crisis on Economic Growth in Indonesia, *6*(24), 120–128.

Siddique, H.S. (2013). Trade and payments. Pakistan Economic Survey 2012-13. Ministry of Finance. Government of Pakistan.

Santos-Paulino, A. U. (2005). Trade liberalization and economic performance: Theory and evidence for developing countries. *World Economy*, *28*(6), 783–821. https://doi.org/10.1111/j.1467-9701.2005.00707.x.

Sabandi, M. (2015). The effects of trade liberalization, Financial Development and Economic Crisis on Economic Growth in Indonesia, *6*(24), 120–128.

Saleem.N., Omer. S., Forman. M.A.H. (2014). Indo-Pakistan Trade Relations: A Critical Discourse Analysis of Daily Dawn. *A Research Journal of South Asian Studies*. 29 (1), pp.309-320

Santos-Paulino, A. U. (2005). Trade liberalization and economic performance: Theory and evidence for developing countries. *World Economy*, *28*(6), 783–821. https://doi.org/10.1111/j.1467-9701.2005.00707.x

Tabish, M.Iqbal.,& Khan, A.M. (2011). Pakistan economic cooperation harnessing India Pakistan Trade potential. SAARC Chamber of Commerce and Industry.

Taneja N, Mehra M, Mukherjee P, Bimal Si and Dayal I. (2014). Normalizing India-Pakistan Trade Summary of Research Studies. *Indian Council for Research on international Economic Relation*.

Viner, J. (1950e,). The Customs Union Issue. *Carnegie Endowment for International Peace*.

Yasmin, B., & Altaf, S. (2014). Revealed comparative advantage of carpets and textile floor covering industry in Pakistan, India and China. Journal of Economic Cooperation and Development, 35(4), 113–134