International Business Relation of Emerging India with South Asian Neighbours: Analysis of Manufacturing Exports

Author:

Abu Hena Reza Hasan
Professor
Department of International Business
University of Dhaka
Dhaka 1000, Bangladesh.
e-Mail: abuhasan@dhakauniv.edu
Phone: +880 2 8115355, + 880191395334 (mobile)

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Abstract

Faster economic growth of India has already made it a major economy in international trade. This paper tries to analyse the manufacturing export trade relationship of India with its South Asian neighbours using specialisation index, index of competition, index of revealed comparative advantage and cross-elasticity. Applying these four tools of analysis in holistic approach, this paper analysed dynamics in international business scenario in manufacturing exports between India and its four large neighbours – Bangladesh, Nepal, Pakistan, and Sri Lanka. . This analysis observes that Indian success in manufactured exports may create threat and opportunities for its neighbouring countries. Sources of data are United Nations, World Bank and other agencies. The analysis observed diversification in manufacturing exports by South Asia countries except Bangladesh. India does not have strong business conflict with Pakistan, Nepal, and Sri Lanka. Bangladesh faces strong competition in international business with India.

Key Words : Emerging Economy, India, South Asia, Regional Trade, Manufacturing

JEL Code: F15, N75, O18

Introduction

India is the largest and most competitive economy in South Asia with a large and highly capable manufacturing sector. The country is emerging as a major economic powerhouse of the world and size of the economy reached one trillion US dollars in 2008. According to the International Monetary Fund (IMF), India had the world's fourth largest gross domestic product (GDP) in purchasing power parity (PPP) in 2010. Indian GDP (PPP) in 2010 was 5.4 percent of the world GDP (PPP). Its GDP (PPP) was 81.7 percent of total GDP (PPP) of South Asia that includes eight countries. In 2010, Indian economy was 8.6 times of Pakistan's economy; 15.5 times of Bangladesh's economy; 38.4 times of Sri Lanka's economy; 113.6 times of Nepal's economy; 135.1 times of Afghanistan's economy; 1057.1 times of Bhutan's economy; and 2279.8 times of Maldives's economy. The largest economy of South Asia, the India had highest level of economic competitiveness among its neighbours. In 2010, the rank of India was 51 in global competitiveness index (GCI) assessed by Global Economic Forum. Same year, competitiveness of Sri Lanka, Bangladesh, Pakistan, and Nepal were 62, 107, 123, and 130 respectively on GCI scale. As reported in the World Bank database, the value addition of Indian manufacturing sector to GDP was 15.87 percent compared to 13.28, 17.92, 6.40, 6.82, 7.00, 17.11, and 18.15 percents respectively in Afghanistan, Bangladesh, Bhutan, Maldives, Pakistan, and Sri Lanka respectively in 2009.

India is predominantly achieving self-sustained growth depending on its own market unlike the China that is achieving export oriented economic growth. Recently it has undertaking initiatives for expanding its manufacturing exports and gradually becoming competitive force in global export markets. Alike other developing nations, the South Asian countries are trying as well to increase merchandise export to accelerate economic growth. The political relationships among countries are often dependent on their interactions in the international business, especially on performances in export markets. Rivalry in international business may lead to political conflicts between two countries while strategic alliances in international business may them political friends.

This paper is an attempt to analyse the relation of India with its South Asian neighbours in international business with an objective to anticipate potential bilateral political and economic conflicts and cooperation. The scope of this paper is limited to bilateral international business relationships of India with four of its South Asian neighbours in

manufacturing exports. The neighbouring countries included in this analysis are Bangladesh, Nepal, Pakistan, and Sri Lanka. The analysis excludes the three other neighbouring countries for not having adequate data from secondary sources. It analyses and compares the competitiveness of Indian manufacturing sector with its four neighbours over the time span of 1980 to 2009 using Herfindahl Index (HI), Index of Trade Competition, and Revealed Comparative Advantage (RCA) Index. This paper reveals dynamics in the international business relations of India with four neighbours and tries to explain consequences of the relationship.

Method of Analysis

Trade relationship among nations is complex phenomena involving large number of sociological, political, and cultural factors. The scope of this paper is not all issues of external trade relationship among four nations in South Asia with India. The discussion is strictly limited to competition and cooperation between countries in manufacturing exports. The analysis has four phases. First, the level of specialisation of each country in manufacturing exports is measured using Herfindahl Index. Second, the index of trade competition of countries with India is estimated. Third, the revealed comparative advantages (RCA) of the selected countries are determined. Finally, cross elasticity of comparative advantage of countries with China and India are calculated.

In economics, the Herfindahl index is a measure of the size of firms in relationship to the industry and an indicator of the amount of competition among them. It is defined as the sum of the squares of the market shares of each individual firm. It can range from 0 to 1 moving from a very large amount of very small firms to a single monopolistic producer. Decreases in the Herfindahl index generally indicate a loss of pricing power and an increase in competition, whereas increases imply the opposite. The Herfindhal Index can measure specialisation in international trade as well (Sapir, 1996; Cerra, Rivera and Saxena, 2005). This paper uses index to estimate specialisation for two reasons. First, understanding specialisation may help to have idea about importance of export items for a country. Second, it may give idea about economic behavioural pattern of the country in international trade. A country with high specialisation should try hard to keep their export going and may become strong competitor in international market. The index can be constructed following the

procedure given below where x_i^j is the country *j*'s exports of items in product group *i*, s_i^j is the share of good *i* in country *j*'s exports; and H_j is the Herfindhal index of country *j*.

$$H_j \equiv \sum_i (s_i^j)^2 \quad where \;\; s_i^j = \frac{x_i^j}{\sum_i x_i^j} \qquad [1]$$

The specialisation may give idea about importance of manufactured items but can not give information about level of competition between two countries in the world market. The indexes of trade competition (Cerra, 2004; Cerra, Rivera and Saxena, 2005) are estimated for Asian neighbours with India in the world market to understand their rivalry in manufacturing exports. The index can be calculated using the following formula where V_t is the measure of trade of two countries, *j* and *k* in period *t*; s_i^j is the share of good *i* in country *j's* exports; and s_i^k is the share of good *i* in country *k's* exports. The *k* is India.

$$V_t = 1 - \frac{\sum_i \left| s_i^j - s_i^k \right|}{2} \quad where \;\; s_i^j = \frac{x_i^j}{\sum_i x_i^j} \; and \;\; s_i^k = \frac{x_i^k}{\sum_i x_i^k} \qquad [2]$$

The value of V_t may be between 0 and 1; where 0 means two countries export entirely different products and 1 means two countries export exactly same products. The competition often means conflict, but this paper accepts two meaning of competition – either conflict or cooperation. A high V_t value between two countries may be an indication for possible competition or cooperation among them in present or in future. It is not possible to say whether two countries either substitute or complimentary to each other from the concentration index. To know this analysis of comparative advantage may help further.

Analysis of comparative advantage of a country in different export products may help to understand comparative strength and weakness of a country in international trade. The revealed comparative advantage (RCA) is popular technique for measuring comparative advantages of nations in international trade. The RCA measures a country's relative export performance in a specific product category compared to its overall export performance. Liesner introduced the concept of RCA while comparing British industry with European Common Market (Liesner, 1958). Later Balassa (1965) refined the methodology of RCA and it became a popular technique for analysis of comparative advantages. The index of revealed comparative advantage (IRCA) or Balasa index can be expressed as following.

$$IRCA_{it}^{j} = \frac{X_{it}^{j} / X_{it}^{w}}{X_{t}^{j} / X_{t}^{w}} \qquad [3]$$

Here, X_{it}^{j} is total export of product *i* by country *j* in period *t*; X_{it}^{w} is total export of product *i* by world (*w*) in period *t*; X_{t}^{j} is total export of country *j* in period *t*; X_{t}^{w} is total export of world in period *t*; and $IRCA_{it}^{j}$ is index or revealed comparative advantage of country j for product *i* in period *t*. If $IRCA_{it}^{j} > 1$, it is assumed that the country *j* has comparative advantage in product *i* in period t. If $IRCA_{it}^{j} < 1$, the country has comparative disadvantage.

This paper uses another technique in addition to the above three established methods to explore trade relationship between countries. It is cross elasticity of revealed comparative advantages of four South Asian countries with India in different product groups. This elasticity measures the magnitude of change in RCA in one country with respect to RCA of another country. The method of calculation is the following.

$$\mathrm{E}_{i}^{jk} = \frac{\Delta IRCA_{id}^{j}}{\Delta IRCA_{id}^{k}} \times \frac{IRCA_{it}^{k}}{IRCA_{it}^{j}} \qquad [4]$$

Here, E_i^{jk} is the cross elasticity of RCA of country *j* with country *k* in export item *i*. *j* may be any of the selected countries other than India; *k* is India. *d* is the difference in time between time t and another time earlier than *t*. When $E_i^{jk} < 1$, the countries should be substitute to each other because comparative advantages of the countries change in different directions. $E_i^{jk} > 1$, countries enjoy change in comparative advantage in same direction and may be complementary. In case of positive cross-elasticity for an export item, cooperation between the countries may be expected. Negative cross-elasticity should result in trade rivalry if the item is very important for any of the countries.

This paper uses all four methods together in holistic way rather than as single instrument. It did not take index of competition as only negative factor but also as positive cooperation. Suppose, two countries have high index of competition; have comparative advantages in same product group; have positive cross-elasticity between two countries in that product group; and high index of specialisation, then this paper identifies two countries as trading allies. Similar rationality has been used all through this paper. This methodology helps to get

expected international business relationship of Bangladesh, Nepal, Pakistan, and Sri Lanka with India in manufacturing exports.

Source of data is World Trade Organization (WTO) and World Bank. Secondary data available from the website of the two organisations are used for analysis in this paper. The export time series data available from WTO website has been used in this paper for calculation all statistics. All product groups are defined according to Revision 3 of the Standard Trade Classification (SITC).

Findings

Merchandise exports of South Asian countries are not very large proportions of total world merchandise exports. The *Table 1* shows merchandise exports of Bangladesh, India, Nepal, Pakistan, and Sri Lanka as percentages of world merchandise exports. Indian merchandise exports as percentage of world total merchandise exports became 1.30 percent in 2009 compared to 0.42 percent in 1980, had a growth rate of 3.96 percent per year. Among the five countries analysed in this paper, Bangladesh achieved highest growth rate of 4.23 percents for merchandise exports between 1980 and 2009. This country showed significant improvement in merchandise exports as its share of world merchandise exports rose to 0.14 percent in 2009 from very insignificant 0.04 percent in 1980. Sri Lanka and Nepal could improve relative share in world merchandise exports but Pakistan failed to increase its relative share in world merchandise exports during the period of 1980 and 2009.

Table 1: Merchandise exports as percentage of world total merchandise exports for five South Asian countries

Country	Merchandise Export as Percent of World Merchandise Exports							Growth Rate (%)
	1980	1985	1990	1995	2000	2005	2009	
Bangladesh	0.04	0.05	0.05	0.07	0.10	0.09	0.12	4.13
India	0.42	0.47	0.52	0.59	0.66	0.95	1.30	3.96
Nepal	0.00	0.01	0.01	0.01	0.01	0.01	0.01	1.75
Pakistan	0.13	0.14	0.16	0.16	0.14	0.15	0.14	0.33
Sri Lanka	0.05	0.07	0.06	0.07	0.08	0.06	0.06	0.39

Source: WTO online database

The proportionate contribution of manufacturing sector to GDP of India is similar to that of its neighbouring countries but volume of manufacturing sector of India is huge because of the

size of the economy. As shown in *Table 2*, the manufacturing exports of South Asian countries are higher percentages of total merchandise exports. Bangladesh and Sri Lanka are becoming more dependent on manufacturing exports compared to India and Pakistan. Indian manufacturing export declined to 66.8 percent of merchandising export in 2009 compared to 70.7 percent in 1990.

Table 2: Manufacturing exports as percentage of total merchandise exports in South Asian countries

Country Name	Manufacturing Export as percent of Merchandise Export							
	1990	2000	2001	2005	2006	2007	2008	2009
Bangladesh	77.5	90.5	92.7	91.2	91.3	88.3	..	..
India	70.7	77.8	74.8	71.1	66.3	64.2	62.8	66.8
Nepal	83.5	66.7	..	..	..	..	..	66.5
Pakistan	78.7	84.7	84.9	81.7	81.3	79.5	73.5	76.4
Sri Lanka	53.6	..	76.6	70.2	70.8	68	67.1	67.3

Source: World Bank Online Database.

Level of Specialisation in Manufactured Exports

The Table 3 presents Herfindahl index of specialisation of South Asian countries in manufacturing exports. India, Pakistan, and Nepal lost specialisation in manufacturing exports between the period of 1980 and 2009. Decline in specialisation means the countries are diversifying in manufacturing exports and expanding their trade portfolio. Bangladesh maintained high level specialisation during the same period. Herfindahl Index of Bangladesh was 0.70 and 0.67 in 1980 and 2009 respectively. This situation indicates that Bangladesh has comparative advantage in manufacturing exports but its manufacturing export portfolio is narrow. Sri Lanka has comparatively high specialisation. This two countries failed to diversify their manufacturing export portfolios.

Table 3: Specialisation in manufacturing exports of South Asian countries measured by Herfindahl Index

Country	**Herfindahl Index**					
	1980	**1990**	**1995**	**2000**	**2005**	**2009**
Bangladesh	0.70	0.37	0.50	0.75	0.67	0.67
India	0.35	0.13	0.15	0.09	0.12	0.35
Nepal	0.60	0.42	0.45	0.36	0.36	0.31
Pakistan	0.53	0.44	0.48	0.44	0.39	0.33
Sri Lanka	0.60	0.47	0.48	0.52	0.49	0.47
World	0.18	0.17	0.17	0.17	0.16	0.16

Trade Competition in Manufactured Exports

The trade competition indexes of South Asian neighbours with India are shown in Table 4. All of the neighbours had higher trade rivalry with India in 1980 comparative to 2009. India's competition with its South Asian neighbours are declining gradually may be for diversification of the manufacturing export diversification achieved by the country. Sri Lanka always had higher trade competition with India in manufacturing exports. Except 2009, trade competition of Bangladesh with India was higher.

Table 4: Index of trade competition of South Asian countries with India

Country	Trade Competition Index					
	1980	1990	1995	2000	2005	2009
Bangladesh	0.41	0.60	0.55	0.47	0.36	0.19
Nepal	0.52	0.57	0.49	0.68	0.60	0.28
Pakistan	0.57	0.62	0.53	0.57	0.47	0.34
Sri Lanka	0.65	0.58	0.59	0.44	0.52	0.38

Comparative Advantages of Asian Countries

Relative Comparative Advantages of South Asian Countries for years of 1980, 1990, 2000, 2005, and 2009 are shown in the Table 5. During the period 1980-2009, Pakistan, Sri Lanka, and Nepal improved their comparative advantages in textile and clothing exports. Bangladesh lost its comparative advantage in textile during the same period but improved the position in clothing exports significantly. India is the only country that lost comparative advantages both in textile and clothing exports gradually during 1980-2009. However, India improved its comparative advantages in export of iron & steel, pharmaceuticals, other manufacturing exports. Pakistan and Sri Lanka also improved comparative advantages in other manufacturing exports.

The manufacturing export of Bangladesh is highly dependent of clothing. The textile and clothing are two important manufacturing exports for Pakistan, Nepal, and Sri Lanka. South Asia is hub of clothing and textile exports as the countries of this region have high comparative advantages in these two industries.

Table 5: Index of Revealed Comparative Advantage (IRCA) of South Asian countries.

Country	Manufacturing Industry	Year				
		1980	1990	2000	2005	2009
Bangladesh	Iron & Steel	0.000	0.002	0.000	0.131	0.158
	Chemicals	0.192	0.120	0.128	0.189	0.122
	Pharmaceuticals	--	--	0.020	0.075	0.088
	Automotive products	0.038	0.003	0.001	0.026	0.013
	Office and Telecom Equipments	0.004	0.000	0.004	0.005	0.055
	Machinery and transport equipment	0.068	0.048	0.063	0.100	0.124
	Textiles	20.189	6.780	2.523	3.889	4.202
	Clothing	0.112	12.273	25.914	27.919	28.138
	Other Manufacturing	0.683	0.361	0.141	0.376	0.566
India	Iron & Steel	0.305	0.439	1.401	1.709	1.474
	Chemicals	0.601	0.862	1.129	1.090	0.962
	Pharmaceuticals	--	--	1.598	1.041	1.022
	Automotive products	0.000	0.119	0.153	0.299	0.430
	Office and Telecom Equipments	0.052	0.117	0.060	0.077	0.216
	Machinery and transport equipment	0.000	0.307	0.293	0.450	0.611
	Textiles	5.627	4.009	5.391	4.264	3.314
	Clothing	3.929	4.491	4.596	3.250	2.787
	Other Manufacturing	2.396	0.854	0.083	1.302	3.060
Nepal	Iron & Steel	0.000	0.000	0.000	0.004	5.455
	Chemicals	0.000	0.048	0.831	0.572	0.606
	Pharmaceuticals	--	--	0.537	0.000	0.069
	Automotive products	0.000	0.000	0.000	0.000	0.001
	Office and Telecom Equipments	0.000	0.000	0.000	0.000	0.003
	Machinery and transport equipment	0.000	0.000	0.025	0.021	0.051
	Textiles	9.829	13.344	9.296	11.091	17.696
	Clothing	0.589	7.768	8.510	3.990	4.071
	Other Manufacturing	0.635	0.518	0.095	3.361	0.075
Pakistan	Iron & Steel	0.000	0.002	0.043	0.137	0.182
	Chemicals	0.000	0.052	0.178	0.289	0.317
	Pharmaceuticals	--	--	0.276	0.185	0.257
	Automotive products	0.000	0.005	0.008	0.016	0.028
	Office and Telecom Equipments	0.008	0.008	0.005	0.040	0.018
	Machinery and transport equipment	0.000	0.051	0.055	0.076	0.119
	Textiles	12.383	15.672	20.590	22.636	21.789
	Clothing	1.977	5.757	7.761	8.458	7.515
	Other Manufacturing	0.903	0.680	0.554	0.723	1.137
Sri Lanka	Iron & Steel	0.000	0.020	0.000	0.021	0.019
	Chemicals	0.000	0.119	0.000	0.123	0.088
	Pharmaceuticals	--	--	0.000	0.153	0.009
	Automotive products	0.000	0.024	0.000	0.033	0.034
	Office and Telecom Equipments	0.006	0.029	0.000	0.080	0.040
	Machinery and transport equipment	0.000	0.137	0.000	0.195	0.267
	Textiles	0.110	0.431	1.843	1.098	1.182
	Clothing	5.122	10.641	16.922	17.057	16.112
	Other Manufacturing	2.219	0.861	1.311	1.238	1.543

Cross-Elasticity of Revealed Comparative Advantage

The Table 6 shows cross-elasticity of revealed comparative advantages for the three periods 1980-1990, 1990-2000, and 2000-2009 of South Asian neighbours with India. A negative cross elasticity means competition while a positive elasticity means no-competition or may be co-operations of South Asian neighbours with India in various sectors of manufacturing exports. Bangladesh did not have negative elasticity with India in clothing exports during 1980-1990 but it had negative cross elasticity during 2000-2009. The clothing is the primary manufacturing export of Bangladesh. Bangladesh had negative cross elasticities with India in chemicals and textiles during 2000-2009. India in fact is competitor of Bangladesh in its primary manufacturing exports.

The negative elasticity of Pakistan with India in textiles declined from -0.70 during 1980-1990 to -0.12 during 2000-2009. Pakistan faced trade competition with India in chemicals exports in 2000-2009. However, in general, the trade competition between Pakistan and India is low. Same scenario exists in case of Sri Lanka as well. In fact, Sri Lanka probably has complementary relationship with India in textile and clothing exports during the period of 1990-2009. Except in textiles, Nepal in general has positive elasticities with India during 2000-2009. In South Asia, India has strong competitive relation with Bangladesh. Though they are political competitors, India and Pakistan have very low competition in export of manufacturing goods. They actually have strong complement relation in most of the items. Sri Lanka and Nepal had enjoyed complement relations with India. Bangladesh had substitute relationship with India in manufacturing exports.

Table 6: Cross-Elasticity of Index of Revealed Comparative Advantage of South Asian countries with India

Country	Time Period	Manufacturing Industry Group								
		Iron & Steel	Chemicals	Pharmaceuticals	Automotive products	Office and Telecom Equipments	Machinery and transport equipment	Textiles	Clothing	Other Manufacturing
Bangladesh	1980-1990	5.57	-1.31	--	-0.87	-2.17	-0.17	2.96	14.72	0.65
	1990-2000	-1.41	0.25	--	-4.89	-2.61	-5.67	-3.11	30.81	0.53
	2000-2009	39.09	0.28	-2.88	1.91	1.54	0.92	-1.05	-0.17	0.63
Nepal	1980-1990	--	5.59	--	--	--	1.00	-0.90	12.88	0.21
	1990-2000	1.91	6.66	--	7.94	--	-41.49	-1.22	3.93	0.84
	2000-2009	39.26	1.96	3.51	1.82	1.78	0.99	-1.30	1.44	-0.12
Pakistan	1980-1990	5.57	5.59	--	1.00	-0.06	1.00	-0.70	7.33	0.30
	1990-2000	1.75	4.12	--	1.84	0.80	-1.44	0.92	12.78	0.12
	2000-2009	24.31	-3.50	0.16	1.16	1.06	1.05	-0.12	0.07	0.36
Sri Lanka	1980-1990	5.57	5.59	--	1.00	1.67	1.00	-3.53	5.25	0.93
	1990-2000	-1.91	-7.48	--	-7.94	3.13	42.16	4.23	19.65	-0.25
	2000-2009	39.27	-12.54	-4.55	2.11	1.78	2.84	0.92	0.10	0.09

Analysis of Findings

India is diversifying in manufacturing exports as it has declining trend in Herfindhal index. India achieved low level of trade specialisation what is an indicator of its ability to participate in many areas of manufacturing exports and compete with other countries. India has comparative advantages in clothing, textiles, iron and steel, in pharmaceuticals, and other manufacturing exports. Indexes of trade competition are high with Pakistan, Nepal, and Sri Lanka. India has lower index of trade competition with Bangladesh. Except Sri Lanka, all other three South Asian neighbours have negative cross-elasticity with India in either textiles or clothing or in both.

All South Asian countries have strong comparative advantages in textiles exports but it declined for Bangladesh and India. The decline in comparative advantages in India is accompanied by increase in comparative advantage for Pakistan, Nepal, and Sri Lanka in

textile exports. These countries have negative elasticities with India in textiles. It means South Asian nations, except Bangladesh, gained from Indian weakness in textile exports. In clothing, except Bangladesh, all other three nations have positive elasticity with India. Bangladesh is Indian competitor in clothing export while other three nations are not direct competitors. If India gained strength in exports of clothing items, the South Asians nations may suffer a lot in manufacturing exports. Political and economic relation of South Asian countries with India may experience trouble in future due to trade war in clothing. However, this may not true in case of textiles. The political and economic relationship of India may improve with South Asian neighbours due to its complementary role of the country in textiles.

Pakistan has in general positive cross-elasticity with India in all groups of manufactured exports except clothing. The index of competition between India and Pakistan is high (0.34) in 2009. Pakistan is more specialised compared to India. Pakistan and India may cooperate in export trade and both may win from it. Hence, a long lasting political conflict in South Asia may turn into friendly cooperation due to economic reasons.

Conclusions

Export trade is an important issue for economic growth of countries and also influencing factor in political relationships. Trade wars certainly a cause of political struggle among countries. Hence, anticipation of potential future trade relationships of India in manufacturing exports may help to anticipate future political environment as well. The international business relation of India with Bangladesh indicates continuous strain in relationship between Bangladesh and India. In South Asia, Pakistan, Nepal, and Sri Lanka in general international business allies of India. Bangladesh is trade enemy of India.

Reference

Balassa, B. (1965). Trade liberalization and 'revealed' comparative advantage. *The Manchester School of Economic and Social Studies*, 33: 92-123.

Cerra, V. (2004). *A New Measure of Trade Competition in Third Country Markets*, International Monetary Fund: Washington (unpublished).

Cerra, V., S. A. Rivera and S. C. Saxena (2005), *Crouching Tiger, Hidden Dragon: What Are the Consequences of China's WTO Entry for India's Trade?*, IMF Working Paper, WP/05/101

Liesner, H. H. (1958). The European Common Market and British Industry. *Economic Journal*, 68: 302-316.

Sapir, A. (1996), 'The Effects of Europe's Internal Market Programme on Production and Trade: A First Assessment' *Weltwirtschaftliches Archiv*, vol. 132.