India – South Africa Merchandise Trade : Export Prospects

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Abstract

In recent years, India's trade with the African region has grown enormously, especially with South Africa, indicating the existence of a huge untapped trade potential for economic cooperation. The trend in total trade has shown the significant rise in both India's exports to and also India's imports from South Africa, with the imports having risen faster than the exports. The study provided an in-depth analysis of competitiveness of Indian exports at different time points (1991, 1996, 2001, 2006, and 2012) using SITC 3-digit product category level and links this analysis of Indian export potential to South Africa. The RCA was also estimated for import of South Africa for the latest study period (2012) to identify the commodities where South Africa enjoys an advantage to import from any country in the world. The study revealed that heavy petrol/bitum oils and zinc have a lower trade rank (traded more) than spices and synthetic organic colour agents (traded less) despite the fact that they are highly advantageous traded commodities, where both India has an advantage to export and South Africa has an advantage to import. Similarly, tea and mate, cine fild developed, natural abrasives n.e.s, are more advantageous to trade against rolled plated m-steel, footwear, rubber tyres/treads. To enhance trade complementarities with South Africa, India should diversify its exports in these product lines also. By focusing on these areas, the gains from trade can be maximized.

Keywords: **revealed comparative advantage (RCA), international trade, opportunities, trade complementarities**

JEL Classification: F11, F14, F15

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In 1991, new economic reforms were introduced by the Indian government to make the economy more liberalized in terms of trade and development. Since 1991, India's foreign trade has shown a significant increase. India's global trade has increasingly diversified towards developing countries. The increasing trade between India and South Africa has provided a new direction for trade. In recent years, India's trade with the African region has grown enormously, especially with South Africa, indicating the existence of a huge untapped trade potential for economic cooperation. 'IBSA' and 'BRICS' labels have given a boost to develop trade relations between India and South Africa. To maximize the gain from trade with South Africa requires India to examine where its comparative advantage lies. The Hecksher-Ohlin theory states that a country has a comparative advantage due to differences in relative factor endowments.

Comparative advantage refers to the ability of a country to produce goods at lower cost than the other countries, and thus, a country should specialize in producing the goods in which it has a comparative advantage. The concept of revealed comparative advantage (RCA) developed by Balassa (1965) is used to identify the particular sectors in which competitiveness of a country's exports lies. By focusing and promoting the export of these key areas, gain in trade can be maximized. The RCA index, despite its limitations, is a useful analysis to determine comparative advantage and provide a further insight into the complementary trade structure of

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participating countries and hence reveal the scope of deepening the relationship.

The objective of the present paper is to estimate the RCA for India's exports at different time points (1991, 1996, 2001, 2006, and 2012) to provide an in-depth analysis of the competitiveness of Indian exports using data at the 3-digit level of the Standard International Trade. The RCA has also been estimated for import of South Africa for the latest study period (2012) to identify the commodities where South Africa enjoys an advantage to import from any country in the world. A set of commodities was also short listed to see complementarities for Indian exports with South African imports. By focusing on these areas, the foundation for strong economic integration can be made.

Review of Literature

Batra and Khan (2005) assessed the RCA index for India and China at the 2 and 6-digit level of HS classification for the years 2000 and 2003. The authors also examined comparative advantage of the two countries according to factor intensity using the SITC Classification. Both India and China enjoyed a comparative advantage in labour and resource-intensive sectors.

Burange and Chaddha (2008) assessed the structure of comparative advantage in India over a 10-year period from 1996 to 2005 using the HS classification. The paper attempted to evaluate India's RCA in exports and imports in different types of goods categorized on the basis of their production. These included, Ricardo, Heckscher-Ohlin (HO), product-cycle (PC) goods, and others. Results suggested that India enjoyed a comparative advantage in the exports of Ricardo and HO goods. On the import front, it was essentially Ricardo goods where India enjoyed a comparative advantage.

Chandran (2010) used Trade Intensity Index (TII) and Revealed Comparative Advantage (RCA) Index to ascertain trade complementarity and similarity between India and ASEAN countries. The study revealed that India had an advantage in some manufactured items like chemicals, iron and steel, jems and jewellery, and can export them to many ASEAN countries. ASEAN has a comparative advantage in electrical and electronic components, and India can import them from ASEAN.

Das and Pradhan (2014) analyzed comparative advantage of India with the Gulf region using the SITC classification. The RCA analysis suggested that India and the Gulf countries do not compete in many areas of merchandise trade except the petroleum and chemical sectors, and thus, there are potential economic benefits to be gained from specialization following bilateral trade liberalization. Bagaria, Santra, and Kumar (2014) investigated the comparative advantage of India and China for the period from 2002-2012 using RCA based on SITC- 1. The authors observed that there are many commodities in which India has a comparative advantage as compared to China - like chemicals, food and live animals, mineral fuels, lubricants and related material, crude materials, inedible except fuel. In machinery and transport equipment, China has a comparative advantage over India. In manufacturing goods, miscellaneous manufactured articles, China and India both have a comparative advantage, so they are basically competing with each other in the world market in these commodities.

The present study assesses the comparative advantage of India's exports and South Africa's imports. The study helps in exploring the areas where the possibility of trade expansion exists. The analysis would help the policy makers in designing trade policies to make regional integration more successful. The present study assesses the comparative advantage of India's exports and South Africa's imports. The study helps in exploring the areas where the possibility of trade expansion exists. The analysis would help the policy makers in designing trade policies to make regional integration more successful.

Objectives of the Study

The main objectives of the study are :

- To analyze the trends in India's foreign trade with South Africa.

↳ To estimate the RCA for India's exports to provide an in-depth analysis of the competitiveness of Indian exports.

↳ To identify the commodities to see complementarities for Indian exports with South African imports on the basis of RCA.

Research Methodology

The data were taken from UN COMTRADE, which was accessed through World Integrated Trade Solutions (WITS). In order to analyze the trends in India's trade with South Africa, the graphical method was used. Furthermore, to evaluate the competitiveness of Indian exports, the RCA was estimated for India's exports at different time points (1991, 1996, 2001, 2006, and 2012). Based on Rev. 3 Standard International Trade Classification (SITC), RCA was computed at the 1-digit level and 3-digit level of disaggregation for each commodity to examine the products in which export potential for Indian products exists. RCA was also computed for South Africa's imports to explore the areas where the possibility of trade expansion exists. Revealed Comparative Advantage (RCA) developed by Balassa (1965) is widely used to study how competitive a product is in the export of a given sector in a country with the export share of that sector in the world market.

$$RCA^{i}_{j} = [\frac{X^{i}_{j}}{X^{j}_{w}}] / [\frac{X^{i}_{j}}{X^{j}_{w}}]$$

Where,

$X^{i}_{j} = i^{th}$ country's export of commodity j,
X^{j}_{w} = world exports of commodity j,
X^{i} = total exports of country i,
X^{w} = total world exports.

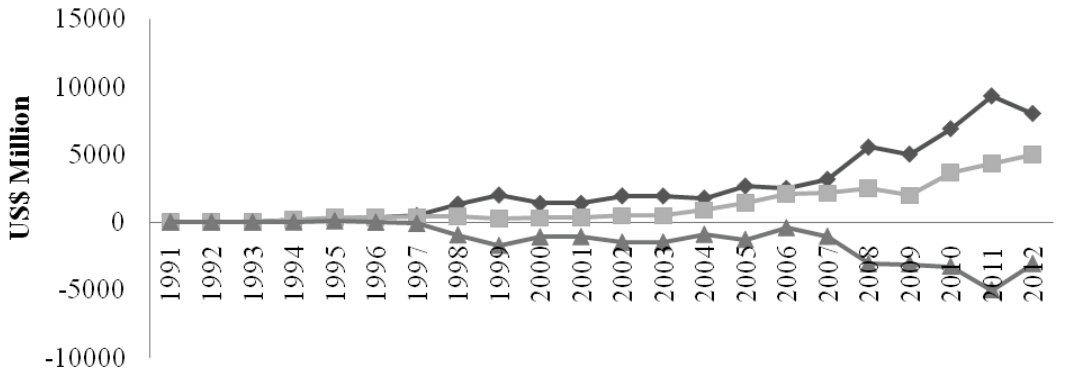
High RCA implies that the product is competitive and can be exported to countries with low RCA. Countries with similar RCA profiles are unlikely to have high bilateral trade intensities unless intra industry trade is involved. A value of less than unity implies that the country has a revealed comparative disadvantage in the product. Similarly, if the index exceeds unity, the country is said to have a revealed comparative advantage in the product.

Results and Discussion

↳ **Trends in India's Trade with South Africa :** South Africa has emerged as an important export market as well as import source for India. This is reflected in the synergy in bilateral trade relations, wherein India's total trade (exports + imports) with South Africa has risen more than 1200 times, from US$ 10.4 million in 1991 to US$ 13008.4 million in 2012 (Figure 1) . The trend in total trade has shown a significant rise in both India's exports to as also India's imports from South Africa, with the imports having risen faster than the exports. While India's total exports to South Africa rose from US$ 5.93 million in 1991 to US$ 4973.3 million in 2012, depicting a more than 800 times rise during the period; India's total imports from South Africa also rose from US$ 4.44 million in 1991 to US$ 8034.74 million in 2012, showing an even higher 1800 times increase. As a result, India's trade balance with South Africa, which stood at a surplus of US$ 1.5 million in 1991, has turned negative in recent years, and amounted to a trade deficit of US$ 3061.44 million in 2012.

↳ **Commodity - Group Wise Composition of India's Exports to South Africa :** The Table 1 presents the commodity group - wise exports of India to South Africa. In the pre-1994 period, Asia and its sub-region did not

Figure 1. India's Bilateral Trade with South Africa



Source: UN COMTRADE via WITS

Table 1. Commodity Group - Wise India's Total Exports to South Africa (US$ Million)

Section no./Description	1991		1996		2001		2006		2012	
	Trade Value	% share	Trade Value	% share	Trade Value	% share	Trade Value	% share	Trade Value	% share
Total Exports	5.93	100	320.7	100	326.7	100	2094.4	100	4973.3	100
0-Food & live animals	0.12	2.04	81.4	25.4	34.5	10.6	139.9	6.7	258.3	5.2
2-Crude materials, inedible, except fuels	-	-	7.5	2.3	10	3.1	23.9	1.1	35.4	0.7
3-Mineral fuels and related materials	-	-	0	0	0	0	783.3	37.4	1803.7	36.3
4-Animal & vegetable oils, fats/ waxes	-	-	1.5	0.5	1.3	0.4	3	0.1	5.7	0.1
5-Chemicals and related products, n.e.s	0.06	1.02	40.2	12.5	41.8	12.8	195	9.3	651.1	13.1
6-Manufactured goods classified by material	1.00	16.83	98.8	30.8	117.3	35.9	371.1	17.7	576.5	11.6
7-Machinery and transport equipment	2.58	43.49	34.8	10.9	41.4	12.7	449.6	21.5	1370.6	27.6
8-Miscellaneous manufactured articles	2.12	35.83	48.6	15.2	74.4	22.8	116.2	5.5	244.8	4.9
9-Commodities and transactions n.e.s	0.05	0.79	5.4	1.7	5.3	1.6	3.1	0.1	0.4	0

Source: Authors' calculation using UNCOMTRADE database via WITS

trade much with South Africa. Diplomatic relations between India and South Africa were restored in 1993 with the signing of an agreement. The Table reveals that in 1996, manufactured goods classified by material (S-6), food and live animals (S-0), miscellaneous manufactured articles (S-8) dominated India's export basket. Rice, spices, crustaceans molluscs, textile, cotton, footwear, and leather products were the main exports of India to South Africa in this period.

The composition of Indian exports to South Africa remained almost the same in 2001. However, this situation changed, to some extent, in the year 2006. It showed signs of diversification. The Table 1 also reveals an interesting trend. The shares of exports of agricultural and basic processed goods have declined over the period of time. In 2012, food and live animals (S-0) accounted for 5.2% share in India's total exports to South Africa as compared to 25.4 % share in 1996. Similarly, exports of manufactured goods classified by material (S-6) and miscellaneous manufactured articles (S-8) also followed a declining trend. On the other hand, there has been a marked increase in the share of mineral fuels (S-3) and transport equipments (S-7) since 2006.

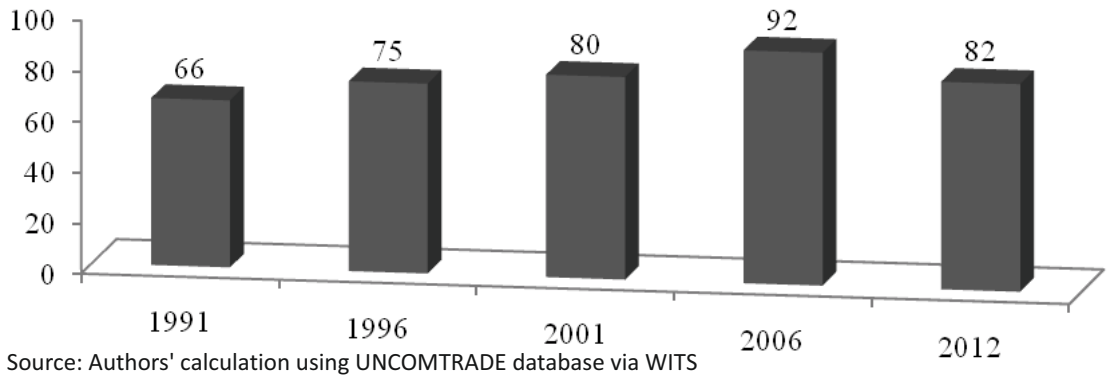
Also, a compositional change has been witnessed in India's exports to South Africa. Exports of mineral fuels, vehicles, auto components, and machinery items have risen over the last few years. In 2006, the major items

Table 2. India's Revealed Comparative Advantage in Merchandise Exports at 1- Digit Level

SITC Code/ Product Description	1991	1996	2001	2006	2012
0-Food & live animals	**2.1**	**2.4**	**2.1**	**1.6**	**1.6**
1-Beverages and tobacco	0.7	0.6	0.5	0.4	0.5
2-Crude materials, inedible, except fuels	**1.7**	**1.6**	**1.3**	**2.1**	**1.6**
3-Mineral fuels, lubricants and related materials	0.3	0.2	0.5	**1.1**	**1.2**
4-Animal and vegetable oils, fats and waxes	**1.0**	**1.2**	**1.5**	0.7	0.6
5-Chemicals and related products, n.e.s	0.9	1.0	**1.1**	**1.1**	**1.1**
6-Manufactured goods classified chiefly by material	**2.2**	**2.4**	**2.7**	**2.2**	**1.8**
7-Machinery and transport equipment	0.2	0.2	0.2	0.3	0.4
8-Miscellaneous manufactured articles	**1.7**	**1.5**	**1.6**	**1.4**	**1.3**
9-Commodities and transactions n.e.s	0.8	0.6	0.7	0.3	0.2
No. of Sections with RCA>1	**5**	**5**	**6**	**6**	**6**

Source: Authors' calculation using UNCOMTRADE database via WITS

Figure 2. Number of Products with RCA > 1



Source: Authors' calculation using UNCOMTRADE database via WITS

exported were mineral products (37.4%), machinery and transport equipments (21.5%), and manufactured goods classified by material (17.7%). These three sections accounted for over 75% exports to South Africa. A similar pattern was observed in 2012. Among the various sections, maximum growth was observed for mineral products (Table 1). Furthermore, it can also be observed from the Table 1 that the high share of Section 0 : Food & Live Animals related to Indian exports that were prevalent in South African markets in 1996 have gradually been replaced by Section 3: Mineral Fuels, Oils and Products exports in 2012.

↳ **India's Revealed Comparative Advantage in Merchandise Exports :** The Table 2 depicts the Revealed Comparative Advantage (RCA) of India's exports for nine product categories based on Rev. 3 Standard International Trade Classification (SITC) at the 1-digit level. At the most aggregated level of the sections, one observes that India enjoyed a comparative advantage in the exports of five out of the total nine sections in 1991 (Table 2). However, in the later years, the figure went up marginally to six sections.

Food & live animals (S-0) ; crude materials, inedible, except fuels (S-2) ; manufactured goods classified chiefly by material (S-6) ; Miscellaneous manufactured articles (S-8) displayed a comparative advantage in exports throughout the period of the study (Table 2). The new entrants essentially include chemical and related products (S-5) ; mineral fuels, lubricants, and related materials (S-3). The computation of RCA for chemicals showed that India developed a comparative advantage in the product category over a period of time (Chandran,

2010). India is gradually gaining advantage in mineral products because of increasing refining capacity in the country. The RCA index of animal and vegetable oils / fats (S-4) declined since 2006. Beverages and tobacco (S-1), machinery and transport equipments (S-7), commodities and transactions n.e.s (S-9) showed a comparative disadvantage (Table 2) throughout the period under study. India experienced a comparative disadvantage in export of animal and vegetable oils and fats for the period from 2002-2012 (Bagaria et al., 2014).

We further considered the comparative advantage in the world market for India at a more disaggregated level of 3-digit (refer to Appendix 1). It was observed that at the 3-digit level in 1991, India had a comparative advantage in 66 out of the total 261 products. The comparative advantage increased in 75 products in 1996, which further rose to 80 and 92 products in 2001 and 2006, respectively. However, in 2012, India's comparative advantage in exports decreased to 82 products (Figure 2). It is mainly 46 items, which displayed a comparative advantage throughout the period of the study (for details of revealed comparative advantage of Indian exports (3-digit level), refer to Appendix 1).

Within Section- 0: Food and Live Animals (Table-3), tea and mate (074) displayed the maximum advantage, with a RCA index of 42 in 1991. The rank came down to the third position in 1996, and again in 2001, this sub-section grasped the top-most position with maximum RCA at the three-digit level. However, the RCA index for this sub-section declined steadily after 2001 ; still, it managed to retain its position amongst the top 10 items at the 3-digit level in 2006 and 2012. Spices (075) are also one of the important items of Indian exports. India possesses a strong revealed comparative advantage in this commodity, with RCA value above 10 throughout the study period. Apart from tea and spices, another important item is rice (042). India possesses a strong revealed comparative advantage in this commodity too. In 2012, rice was the top most item having maximum RCA of 15.58. Crustaceans molluscs (036) were another important export of India till 2001. In 2006 and 2012, this item lost its position amongst the top 10 products having maximum RCA in India's merchandise exports. At the 3-digit level of disaggregation, it can be observed that certain items like sugar/mollasses/honey (61) ; cereal meal/flour n.e.s (47) ; cereal grains n.e.s (45) ; maize except sweet corn (44) ; eggs, albumin (25) ; beef, fresh/chilled/frozen (11) were gradually gaining ground. On the other hand, certain items like flour/meal wheat/meslin (46) ; vegetables, fresh/chilled/frozen (54) ; fruit/nuts, fresh/dried (57) exhibited a move from a comparative advantage to a disadvantage in 2012. India was found to have a comparative advantage in exports of coffee /coffee substitute (71) and animal feed (81) in all the years under study, but over the years, India's comparative advantage seems to have worsened gradually. In 1991, the value of RCA index for coffee was 3.68, which rose to 4.81 in 1996. By the year 2001, the value fell to 4.27, and further to 2.33 and 1.35 in 2006 and 2012, respectively - clearly depicting a downward trend (Appendix 1).

The pattern of comparative advantage may differ across different levels of disaggregation, and it may happen that some sectors where India has a disadvantage at the one-digit level simultaneously reveal a significant comparative advantage at the constituent commodity (SITC-three digit) level (Batra & Khan, 2005).

Within section-1, tobacco - raw and waste (121) showed immense comparative advantage at the three digit level ; however, at the one digit level, this section was absent from the list of sections enjoying a comparative advantage (Table 2). Within section 2, cotton (263) showed an immense advantage and was ranked at the 6th and 4th position among the top 10 products having maximum RCA in 2006 and 2012, respectively (Table 3). Stone/sand/gravel (273) and crude veg materials (292) that include lac, gum, and resin are other important exports of India having strong RCA. In 2012, crude veg materials were ranked at the 6th position having maximum comparative advantage. Silk (261) is another item where India possesses a comparative advantage in exports. The industry is vibrant and prospering owing to the infrastructure created by the national sericulture project, a wide base, and growing research and training capabilities (Burange & Chaddha, 2008). However, the RCA value of silk has declined since 2001. Oil seeds-not soft oil (223), mainly castor oil seeds is one of the main exports of India having strong RCA until 2001. However, since 2001, the item - castor oil seeds witnessed a steady decline in its position. Iron ore / concentrates was among the top 10 products having maximum RCA in 1991, but the RCA index declined steadily, and this product was unable to grab a place among the top 10 products having maximum RCA in 2012. Jute/bast fibre raw/retd (264), veg text fibre ex cot/ju (265), synthetic spinning fibre (266), man-made fibres (267) also showed relatively strong levels of revealed comparative advantage in 2012 (Appendix-1).

Mineral fuels, lubricants and related materials (S-3) are gradually gaining advantage because of increasing refining capacity in the country. RCA values are also supporting this fact; RCA was below one in the initial years of the study ; whereas since 2006, it has been above one, indicating increasing share of minerals and related materials' share in India's export to the world. Heavy petrol/bitum oils (334) have made a move from a comparative disadvantageous position to an advantageous position in the recent past (Appendix- 1).

India experienced a comparative advantage in export of animal and vegetable oils and fats (S-4) in the initial years of the study, but the RCA index of this section declined since 2006. In 1991, India had a comparative advantage in exports of fixed veg oils, not soft oils (422) with RCA estimates of 2.87, which rose to 3.87 in 2001, but the situation deteriorated over the years, and the RCA value was 0.98 in 2012. Animal/veg oils processed (431) is another sub-section that moved from a comparative advantageous position to a disadvantage position in 2012 (Appendix- 1).

The country's comparative advantage in chemicals and related products (S-5) lies in nitrogen-function compounds (514), other organic chemicals (516), synthetic organic chemicals (531), household/garden chemicals (591), essential oil/perfume/flavor (551), medicinal and pharmaceutical products (542), and dyeing/tanning extracts (532) (Appendix- 1).

In the category of manufactured goods classified chiefly by material (S-6), India possesses a revealed comparative advantage in many industries within this commodity grouping, with strong RCA values. Pearls / precious stones (667) have remained one of the top five sub-sections having maximum RCA throughout the study period. Besides this, India also has a strong comparative advantage in textile yarn (651), made-up textile articles

Table 3. Top 10 Sub-Sections Having Comparative Advantage in India's Merchandise Exports with their Ranks

SITC Code	Product Description	1991		1996		2001		2006		2012	
		RCA	Rank	RCA	Rank	RCA	Rank	RCA	Rank	RCA	Rank
74	Tea and mate	42.0	1	22.0	3	18.7	1	9.2	9	6.5	10
75	Spices	20.5	2	22.2	2	12.6	3	11.4	5	11.4	3
667	Pearls/precious stones	19.8	3	16.1	5	17.4	2	11.9	3	10.6	5
612	Leather manufactures	17.4	4	13.2	6	11.9	5				
42	Rice	13.7	5	20.9	4	12.4	4	13.6	2	15.6	1
281	Iron ore/concentrates	13.1	6					11.4	4		
659	Floor coverings etc.	12.6	7	11.5	7	10.0	7	9.6	8		
843	Men/boy wear knit/croch	9.8	8			8.2	10				
36	Crustaceans molluscs etc	9.3	9	8.9	8	8.2	9				
842	Women/girl clothing woven	9.2	10								
345	Coal gas/water gas/etc			26.7	1			65.7	1		
273	Stone/sand/gravel			8.8	9	10.3	6				
263	Cotton			8.7	10			10.1	6	11.3	4
658	Made-up textile articles					8.6	8				
897	Jewellery							10.0	7	8.9	7
516	Other organic compounds							7.6	10		
264	Jute/bast fibre raw/retd									14.9	2
292	Crude veg materials nes									9.7	6
265	Veg text fibre ex cot/ju									7.8	8
531	Synth org colour agents									7.4	9

Source: Authors' calculation using UNCOMTRADE database via WITS

Table 4. Top 10 Sub-Sections Having Comparative Advantage in South Africa's Merchandise Imports with their Ranks

		1996		2001		2006		2012	
SITC Code	Product Description	RCA	Rank	RCA	Rank	RCA	Rank	RCA	Rank
285	Aluminium ores/concs/etc	6.23	1	8.77	1	7.27	1	5.08	5
42	Rice	4.47	2	4.68	2	4.44	3	6.47	4
274	Sulphur/unroastd pyrites	4.39	3	3.97	5	3.95	4		
726	Printing industry machny	4.17	4	4.04	4				
722	Tractors	3.92	5					3.27	7
633	Cork manufactures	3.84	6	4.13	3	2.78	6		
597	Oil etc additives/fluids	3.79	7	3.63	6				
725	Paper industry machinery	3.33	8					3.12	9
431	Animal/veg oils procesd	3.03	9						
723	Civil engineering plant	3.12	10	2.79	9	2.30	8	3.35	6
325	Coke/semi-coke/retort c			3.38	7			8.72	3
792	Aircraft/spacecraft/etc			2.95	8				
593	Explosives/pyrotechnics			2.74	10				
284	Nickel ores/concs/etc	6.83					2		
683	Nickel					2.82	5		
714	Engines non-electric nes					2.62	7		
745	Non-electr machines nes					2.30	9		
751	Office machines					2.20	10		
712	Steam/vapour turbines							22.88	1
345	Coal gas/water gas/etc							21.69	2
677	Iron/steel railway matl							3.27	8
883	Cine fild developed							3.02	10

Source: Authors' calculation using UNCOMTRADE database via WITS

(658), cotton fabrics woven (652), man-made woven fabrics (653), floor coverings (659), pig iron etc., (671), rubber tyres/treads (625) etc. India was found to have a comparative advantage in exports of leather (611), leather manufactures (612), and lime/ cement/ construction material (661) in all the years under study ; but over the years, India's comparative advantage seems to have worsened gradually (Appendix- 1).

Machinery and transport equipments (S-7) and commodities and transactions n.e.s (S-9) showed a comparative disadvantage throughout the period under study. However, at the 3-digit disaggregation level, it was observed that within S-7, India has a comparative advantage in transport equipment such as motor vehicles, motorcycles and cycles (785) ; whereas, steam generating boilers (711), tractors (722), and ships/boats etc.(793) have moved from a comparative disadvantageous position to an advantageous position in the recent past (Appendix- 1).

Misc. manufactured articles (S-8) is another important aggregation of goods for India. India's comparative advantage is indicated in a wide-range of products, prominent among them is jewellery (897). In 2006 and 2012, jewellery was among the top 10 products having maximum RCA (Table 3). Cine fild developed (883) ; men/ women clothing woven, accessories, apparels (841, 842, 843, 844, 845, 846, 848) ; footwear (851) also showed a comparative advantage within this commodity group (Appendix- 1).

The Table 3 suggests that the top 10 chapters have witnessed some reshuffling in their position during the study

period. Food, agricultural raw materials, textile products, leather products, and precious stones held an important position among high RCA products.

↳ **South Africa's Revealed Comparative Advantage in Merchandise Imports :** Based on Rev. 3 Standard International Trade Classification (SITC), RCA was computed at the 3-digit level of disaggregation for South Africa and the top 10 commodities were identified, in which South Africa has highest RCA in importing (Table 4).

According to the Table 4, the commodities in which South Africa has high RCA in importing throughout the study period are : Aluminium ores/concs (285), rice (42), civil engineering plant (723). In 2012, commodities like steam/vapour turbines (712), coal gas/water gas/etc (345), coke/semi-coke/retort (325), tractors (722), paper

Table 5. Sectors with High Potential Growth in Exports (Opportunities)

SITC Code	Product Description	South Africa's Import RCA	India's Export RCA	Rank in Exports to South Africa
42	Rice	6.47	15.58	5
75	Spices	1.67	11.43	22
531	Synth org colour agents	1.19	7.42	29
74	Tea and mate	1.43	6.48	177
883	Cine fild developed	3.02	6.16	174
277	Natural abrasives n.e.s.	2.71	3.66	179
121	Tobacco, raw and wastes	1.89	3.62	25
591	Household/garden chemcal	1.99	3.41	43
334	Heavy petrol/bitum oils	1.16	3.40	1
653	Man-made woven fabrics	1.85	2.65	38
686	Zinc	2.29	2.49	17
843	Men/boy wear knit/croch	1.13	2.29	57
551	Essent.oil/perfume/flavr	1.28	2.28	27
785	Motorcycles/cycles/etc	1.23	2.14	95
81	Animal feed ex unml cer.	1.33	2.09	130
722	Tractors	3.27	1.94	15
674	Rolled plated m-steel	1.18	1.84	31
285	Aluminium ores/concs/etc	5.08	1.80	142
41	Wheat/meslin	1.93	1.65	227
678	Iron/steel wire	1.27	1.60	96
45	Cereal grains nes	2.05	1.49	163
697	Base metal hhold equipms	1.07	1.35	58
513	Carboxylic acid compound	1.09	1.27	73
625	Rubber tyres/treads	1.57	1.22	16
693	Wire prod exc ins electr	1.54	1.18	82
325	Coke/semi-coke/retort c	8.72	1.17	191
523	Metal salts of inorg acd	2.07	1.16	76
522	Elements/oxides/hal salt	1.00	1.03	61
4851	Footwear	1.49	1.02	47

Source: Authors' calculation using UNCOMTRADE database via WITS

industry machinery (725), iron/steel railway material (677), cine fild developed (883) (Cinematographic film, exposed and developed, whether or not incorporating soundtrack or consisting only of soundtrack) were in the list of top 10 products showing a comparative advantage in imports for South Africa.

↳ **India - South Africa :** Although India's exports to South Africa compose of a variety of products like rice, heavy petrol/bitum oils, passenger cars , medicaments, organic-inorganic compounds, base metals, tractors, zinc, textile , leather, plastic sheets (Appendix 2), yet there exists a possibility of increased trade cooperation. The RCA indices, despite their limitations, are useful to determine the comparative advantage and provide further insights into the complementary trade structure of participating countries and hence, reveal the scope of deepening the trade relationship with South Africa.

To explore the trade potential between India and South Africa, the RCA values of Indian exports and South African imports were compared for the period 2012 (Siwach & Nanda, 2012), and a set of commodities were identified where India has a comparative advantage in exports, and South Africa has a comparative advantage in imports (Table 5). To enhance trade complementarities with South Africa, India should diversify its exports in these product lines as well.

The RCA analysis results (Table 5) clearly indicate that there exists trade potential in a number of commodities between India and South Africa. A re-orientation in Indian exports can make India a major exporter of these commodities to South Africa. As evident from the Table 5, tea and mate , cine fild developed, natural abrasives n.e.s, are more advantageous to trade against rolled plated m-steel, footwear, rubber tyres/treads. Similarly, heavy petrol/bitum oils and zinc have a lower trade rank than spices, synthetic organic colour agents, despite the fact that they are highly advantageous traded commodities, where both India has an advantage to export and South Africa has an advantage to import. One reason for such trends can be a lower supply of these goods in India or lower demand from South Africa. However, if the supply and demand is not a constraint, then India should diversify its exports in these product lines also to enhance trade gains with South Africa.

Conclusion

India's trade with the South Africa has increased phenomenally over the last decade. However, there is a compositional change in India's exports to South Africa. 'IBSA' and 'BRICS' labels have given a boost to develop trade relations between India and South Africa. The trend in total trade has shown a significant rise in both India's exports to as also India's imports from South Africa, with the imports having risen faster than the exports.

As far as commodity group wise exports of India to South Africa are concerned, manufactured goods classified by material (S-6), food and live animals (S-0), and miscellaneous manufactured articles (S-8) dominated India's export basket in 1996. Rice, spices, crustaceans molluscs, textile, cotton, footwear, leather products were the main exports of India to South Africa in this period. In 2006, it showed signs of diversification. The shares of exports of agricultural and basic processed goods declined over a period of time. On the other hand, there was a marked increase in the share of mineral fuels (S-3) and transport equipments (S-7) since 2006. India possessed a revealed comparative advantage in most of the aggregations of commodities at the 1-digit level. These advantages are relatively weak, however, with RCA values of less than 3. Similar results were also obtained by Das and Pradhan (2014).

In individual industries at a 3-digit level, however, a different image appears. India possessed a strong RCA in industries such as rice ; cotton ; spices ; agricultural raw materials ; precious stones ; cine fild developed ; made-up textile articles ; textile yarn ; floor coverings ; beef, fresh/chilled/frozen ; crustaceans molluscs ; tobacco ; synthetic organic colour agents ; and jewellery. Yunus, Mohamed, Mahyideen, and Saidon (2010) also obtained similar results. The sectors where only India is advantageously placed lie predominantly in the agriculture and allied products category. The comparative advantage for both the countries is observed to be predominantly in the labor and resource intensive manufactures. Sectors like textiles (yarn, fabric, made-up articles n.e.s, and related

products) and articles of apparel and clothing accessories dominate in these categories for both the countries (Batra & Khan, 2005).

RCA values also indicate that mineral fuels, lubricants, and related materials (S-3) are gradually gaining advantage because of increasing refining capacity in the country. However, machinery and transport equipments (S-7) showed comparative disadvantage throughout the period under study at the 1-digit level, but at the 3-digit disaggregation level, it was observed that within S-7, India has a comparative advantage in transport equipment such as motor vehicles, motorcycles, and cycles ; whereas, steam generating boilers, tractors, and ship/boat etc., have moved from a comparative disadvantageous position to an advantageous position in the recent past. A similar result was obtained by Burange and Chaddha (2008). They also used the revealed comparative advantage index to analyze the competitiveness of Indian exports. They also concluded that India is gradually gaining advantage in mineral products. Puri (2007) stated that there is considerable room for a complementary integration among IBSA countries. India has a comparative advantage in exports of rice, tea, spices, and processed products to these countries. Textiles and garments also present areas of complementarity (Puri, 2007).

On the basis of the RCA values, it can be concluded that India's trade with South Africa has not achieved optimal outcomes even though there are several other opportunities of India's export interest in South Africa. To enhance trade complementarities with South Africa, India should diversify its exports in new product lines where India has a comparative advantage in exports, and South Africa has a comparative advantage in imports.

The government has also taken initiatives to enhance economic links with South Africa. The foreign trade policy 2009-2014 (Government of India, Ministry of Commerce and Industry, 2009) has expanded the Market Linked Focus Product Scheme (MLFPS). Some major products include : Pharmaceuticals, synthetic textile fabrics, value added rubber products, value added plastic goods, textile made ups, knitted and crocheted fabrics, glass products, certain iron and steel products . Benefits to these products will be provided, if exports are made to 13 identified markets, and South Africa is one of these markets. MLFPS benefits are also extended for export to additional new markets for certain products. These products include auto components, motor cars, bicycle and its parts, and apparels among others. A free trade agreement (FTA) between the Southern African Customs Union (SACU) and India is on the agenda for discussions.

Research Implications

South Africa has emerged as an important trade partner of India. The trend in total trade has shown a significant rise in both India's exports to as also India's imports from South Africa, with the imports having risen faster than the exports. The present study assessed the opportunities for trade expansion of Indian exports with South Africa. The trade structure between India and South Africa is complementary. The RCA index helps in determining the advantage each country holds in production of different commodities. Exports of the commodities should be promoted, which have a high comparative advantage - like tea , cine fild developed, man-made fabrics, household garden chemicals, natural abrasives, wheat, and so forth.

From the policy perspective, the study aimed at providing policy makers the identification of those commodities that have high RCA and feature prominently in the trade flows between South Africa and India. India should re-orient its export policy in the product lines discussed in section titled "India - South Africa" and maximize the gains from trade. The scope of the Market Linked Focused Product Scheme should be also widened to incorporate all these products. However, to maximize the gains from trade, it is essential to examine the trade tariffs and demand of these products in South Africa, which was not considered in the present study. Hence, it can be considered as a limitation of the study and the same can be taken up by researchers in future studies.

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Appendix 1. Revealed Comparative Advantage of Indian Exports (3-Digit Level)

Product Code	Product Description	1991	1996	2001	2006	2012
0	**Food & live animals**	**2.05**	**2.37**	**2.10**	**1.57**	**1.56**
1	Live animals except fish	0.01	0.03	0.04	0.07	0.02
11	Beef, fresh/chilled/frozen	1.01	2.04	2.88	2.73	4.53
12	Meat nes,fresh/chilled/frozen	0.18	0.12	0.05	0.05	0.12
16	Meat/offal preserved	0.03	0.01	0.04	0.02	0.05
17	Meat/offal preserved n.e.s	0.02	0.03	0.01	0.03	0.01
22	Milk pr exc butter/cheese	0.07	0.02	0.31	0.39	0.16
23	Butter and cheese	0.05	0.07	0.26	0.33	0.30
24	Cheese and curd	0.00	0.00	0.00	0.01	0.03
25	Eggs, albumin	0.48	2.61	2.90	2.30	1.16
34	Fish,live/fresh/chilled/frozen	0.80	2.00	1.73	0.82	0.98
35	Fish,dried/salted/smoked	0.19	0.26	0.37	0.25	0.18
36	Crustaceans molluscs etc	9.32	8.88	8.20	5.54	4.69
37	Fish/shellfish,prep/pres	0.03	0.11	0.06	1.18	0.19
41	Wheat/meslin	0.75	1.48	2.57	0.04	1.65
42	Rice	13.75	20.89	12.42	13.58	15.58
43	Barley grain	0.00	0.00	0.00	0.00	0.27
44	Maize except sweet corn.	0.00	0.13	0.23	0.78	1.89
45	Cereal grains nes	0.41	0.23	0.33	1.06	1.49
46	Flour/meal wheat/meslin	0.04	7.16	3.13	0.45	0.86
47	Cereal meal/flour n.e.s	0.04	0.56	0.33	0.90	1.28
48	Cereal etc flour/starch	0.07	0.10	0.15	0.34	0.38
54	Vegetables,fresh/chilled/frz	1.09	1.16	1.42	1.53	0.83
56	Veg root/tuber prep/pres	0.59	0.58	0.77	1.00	0.79
57	Fruit/nuts, fresh/dried	3.20	2.48	2.44	1.67	0.95
58	Fruit preserved/fruit preps	0.93	1.02	1.98	0.52	0.55
59	Fruit/veg juices	0.05	0.02	0.10	0.06	0.06
61	Sugar/mollasses/honey	1.46	3.31	4.04	2.97	3.15
62	Sugar confectionery	0.04	0.07	0.21	0.34	0.36
71	Coffee/coffee substitute	3.68	4.81	4.27	2.33	1.35
72	Cocoa	0.04	0.03	0.03	0.02	0.04
73	Chocolate/cocoa preps	0.04	0.03	0.05	0.04	0.11
74	Tea and mate	42.00	21.97	18.75	9.25	6.48
75	Spices	20.50	22.19	12.64	11.42	11.43
81	Animal feed ex unml cer.	4.84	6.37	2.85	3.76	2.09
91	Margarine/shortening	1.03	0.69	0.57	0.15	0.07
98	Edible products n.e.s.	0.29	0.35	0.49	0.23	0.27

1	**Beverages and tobacco**	**0.7**	**0.6**	**0.5**	**0.4**	**0.5**
111	Beverage non-alcohol nes	0.01	0.01	0.02	0.04	0.03
112	Alcoholic beverages	0.06	0.07	0.08	0.07	0.15
121	Tobacco, raw and wastes	4.27	4.50	2.97	3.67	3.62
122	Tobacco, manufactured	0.37	0.21	0.45	0.45	0.49
2	**Crude materials, inedible, except fuels**	**1.7**	**1.6**	**1.3**	**2.1**	**1.6**
211	Hide/skin (ex fur) raw	0.03	0.01	0.03	0.27	0.02
212	Fur skins/pieces, raw	0.00	0.00	0.00	0.00	0.00
222	Oil seeds etc - soft oil	0.81	1.73	1.89	1.51	1.17
223	Oil seeds-not soft oil	5.77	5.43	4.53	1.50	0.85
231	Natural rubber/latex/etc	0.09	0.10	0.17	0.82	0.14
232	Rubber synthetic/waste/etc	0.11	0.16	0.19	0.31	0.24
244	Cork natural/raw/waste	0.00	0.04	0.06	0.21	0.12
245	Fuel wood/wood charcoal	0.05	0.17	0.78	0.50	0.70
246	Wood chips/waste	0.00	0.00	0.00	0.00	0.00
247	Wood in rough/squared	0.05	0.03	0.02	0.04	0.01
248	Wood simply worked	0.00	0.01	0.01	0.03	0.05
251	Pulp and waste paper	0.00	0.01	0.01	0.00	0.00
261	Silk	1.88	1.83	5.28	2.42	1.46
263	Cotton	3.86	8.75	0.35	10.12	11.29
264	Jute/bast fibre raw/retd	2.49	2.60	4.06	0.78	14.85
265	Veg text fibre ex cot/ju	0.04	0.24	0.87	2.29	7.80
266	Synthetic spinning fibre	0.76	0.47	0.69	2.11	2.15
267	Man-made fibres nes/waste	0.44	0.20	0.32	1.04	2.73
268	Wool/animal hair	0.04	0.06	0.13	0.50	0.60
269	Worn clothing etc	0.05	0.08	0.50	0.14	1.03
272	Fertilizers crude	0.02	0.02	0.29	0.07	0.05
273	Stone/sand/gravel	8.22	8.76	10.26	7.46	5.86
274	Sulphur/unroastd pyrites	0.01	0.05	0.07	2.96	0.59
277	Natural abrasives n.e.s.	1.37	3.41	4.60	4.55	3.66
278	Other crude minerals	1.54	0.97	1.46	1.63	2.54
281	Iron ore/concentrates	13.12	8.60	5.74	11.44	1.19
282	Ferrous waste/scrap	0.08	0.16	0.09	0.02	0.01
283	Copper ores/concentrates	0.00	0.00	0.02	0.01	0.00
284	Nickel ores/concs/etc	0.00	0.00	0.00	0.00	0.00
285	Aluminium ores/concs/etc	2.44	3.07	0.93	4.56	1.80
286	Uranium or thorium ores and concentrates	0.00	0.00	0.00	0.00	0.00
287	Base metal ore/conc nes	3.51	2.76	2.89	2.74	0.89
288	Nf base metal waste nes	0.02	0.08	0.10	0.16	0.07

289	Precious metal ore/conc.	0.00	0.00	0.02	1.89	1.65
291	Crude animal mterial nes	3.24	2.14	1.71	0.76	0.81
292	Crude veg materials nes	2.64	3.15	3.57	2.44	9.73
3	**Mineral fuels, lubricants and related materials**	**0.3**	**0.2**	**0.5**	**1.1**	**1.2**
321	Coal non-agglomerated	0.08	0.18	0.37	0.14	0.05
322	Briquettes/lignite/peat	0.02	0.04	0.01	0.03	0.08
325	Coke/semi-coke/retort c	0.02	0.07	0.02	0.10	1.17
333	Petrol./bitum. oil, crude	0.00	0.00	0.00	0.01	0.00
334	Heavy petrol/bitum oils	1.02	0.74	1.97	3.69	3.40
335	Residual petrol. prods	0.04	0.20	0.47	1.28	1.42
342	Liquid propane/butane	0.00	0.00	0.00	0.00	0.00
343	Natural gas	0.00	0.00	0.00	0.03	0.01
344	Petrol./hydrocarbon gas	0.01	0.00	0.01	0.85	0.88
345	Coal gas/water gas/etc	2.80	26.68	0.01	65.73	0.42
351	Electric current	0.00	0.00	0.00	0.00	0.00
4	**Animal and vegetable oils, fats and waxes**	**1.0**	**1.2**	**1.5**	**0.7**	**0.6**
411	Animal oil/fat	0.03	0.02	0.16	0.43	0.37
421	Fixed veg oil/fat, soft	0.00	0.03	0.09	0.16	0.10
422	Fixed veg oils not soft	2.87	3.38	3.87	1.42	0.98
431	Animal/veg oils processed	1.15	1.28	1.53	1.13	0.73
5	**Chemicals and related products, n.e.s**	**0.9**	**1.0**	**1.1**	**1.1**	**1.1**
511	Hydrocarbons/derivatives	0.28	0.81	0.82	2.95	1.93
512	Alcohols/phenols/derivs	0.82	2.16	1.42	1.40	1.71
513	Carboxylic acid compound	0.35	1.00	1.55	0.87	1.27
514	Nitrogen function compounds	1.59	1.62	1.46	1.36	1.21
515	Organic-inorganic compounds	0.43	0.43	0.54	0.49	0.79
516	Other organic compounds	1.52	3.23	5.52	7.64	4.94
522	Elements/oxides/hal salt	0.44	0.65	0.75	0.54	1.03
523	Metal salts of inorg acd	0.91	0.88	1.20	1.26	1.16
524	Other inorganic chemical	0.45	0.81	1.88	0.20	0.22
525	Radio-active etc material	0.01	0.02	0.08	0.01	0.02
531	Synthetic organic colour agents	5.66	6.22	6.90	6.79	7.42
532	Dyeing/tanning extracts	1.22	1.34	1.56	2.49	1.93
533	Pigments/paints/varnish	0.47	0.16	0.41	0.37	0.44
541	Pharmaceutical exc medicament	0.53	0.98	1.44	0.86	0.69
542	Medicaments include vet	3.09	1.97	1.36	1.15	1.64
551	Essent.oil/perfume/flavour	2.45	1.51	0.97	1.66	2.28
553	Perfume/toilet/cosmetics	1.52	0.65	0.84	0.49	0.41
554	Soaps/cleansers/polishes	2.71	0.40	0.31	0.35	0.93

562	Manufactured fertilizers	0.09	0.21	0.22	0.04	0.08
571	Primary ethylene polymer	0.03	0.15	0.51	0.82	0.28
572	Styrene primary polymers	0.03	0.19	0.39	0.77	0.30
573	Vinyl chloride etc polymer	0.06	0.41	0.48	0.11	0.22
574	Polyacetals/polyesters	0.01	0.14	0.46	1.04	0.58
575	Plastic nes-primary form	0.04	0.13	0.90	0.84	0.77
579	Plastic waste/scrap	0.20	0.05	0.05	0.32	0.14
581	Plastic tube/pipe/hose	0.25	0.33	0.30	0.44	0.36
582	Plastic sheets/film/etc	0.18	0.74	0.67	0.63	0.66
583	Monofilament rods/sticks	0.12	0.11	0.13	0.14	0.33
591	Household/garden chemicals	1.99	2.69	3.63	3.79	3.41
592	Starches/glues/etc.	0.11	0.40	0.75	0.76	0.65
593	Explosives/pyrotechnics	0.76	1.15	1.02	0.46	0.50
597	Oil etc additives/fluids	0.02	0.09	0.29	0.30	0.25
598	Misc chemical prods nes	0.18	0.24	0.49	0.48	0.37
6	**Manufactured goods classified chiefly by material**	**2.2**	**2.4**	**2.7**	**2.2**	**1.8**
611	Leather	6.69	2.90	3.64	3.04	2.75
612	Leather manufactures	17.40	13.22	11.87	3.85	2.46
613	Fur skins tanned/dressed	0.00	0.00	0.00	0.00	0.01
621	Materials of rubber	0.15	0.21	0.46	0.62	0.43
625	Rubber tyres/treads	0.97	1.54	1.41	1.32	1.22
629	Articles of rubber nes	0.59	0.84	1.01	1.14	0.92
633	Cork manufactures	0.03	0.02	0.05	0.06	0.08
634	Veneer/plywood/etc	0.19	0.27	0.12	0.16	0.08
635	Wood manufactures n.e.s.	0.10	0.09	0.12	0.20	0.38
641	Paper/paperboard	0.05	0.16	0.25	0.31	0.27
642	Cut paper/board/articles	0.05	0.18	0.26	0.24	0.40
651	Textile yarn	4.49	8.50	7.84	5.78	5.96
652	Cotton fabrics, woven	9.08	6.97	6.24	2.92	3.14
653	Man-made woven fabrics	1.60	1.59	2.91	2.94	2.65
654	Woven textile fabric nes	5.38	3.08	5.02	4.08	1.91
655	Knit/crochet fabrics	1.58	0.71	0.30	0.32	0.41
656	Tulle/lace/embr/trim etc	1.47	1.08	1.90	1.48	1.46
657	Special yarns/fabrics	0.32	0.58	0.56	0.53	0.64
658	Made-up textile articles	8.20	8.33	8.64	6.72	4.68
659	Floor coverings etc.	12.61	11.53	9.95	9.62	5.55
661	Lime/cement/construction material	1.67	3.41	4.29	4.22	2.29
662	Clay/refractory material	0.17	0.27	0.74	0.42	0.60
663	Mineral manufactures nes	0.30	0.30	0.43	0.47	0.51

664	Glass	0.09	0.31	0.44	0.41	0.30
665	Glassware	0.44	0.47	0.73	0.86	0.81
666	Pottery	0.04	0.11	0.25	0.15	0.10
667	Pearls/precious stones	19.85	16.09	17.44	11.91	10.55
671	Pig iron etc ferro alloy	3.20	2.73	1.87	2.05	3.35
672	Primary/prods iron/steel	0.47	1.06	0.58	1.58	0.60
673	Flat rolled iron/st prod	0.06	0.59	0.91	1.56	1.05
674	Rolled plated m-steel	0.09	1.55	2.04	4.14	1.84
675	Flat rolled alloy steel	0.76	0.24	0.95	0.82	0.69
676	Iron/steel bars/rods/etc	0.98	1.42	1.06	1.01	0.70
677	Iron/steel railway material	0.21	0.48	0.24	0.18	0.64
678	Iron/steel wire	1.65	2.58	2.02	2.34	1.60
679	Iron/steel pipe/tube/etc	0.41	0.71	1.04	1.94	1.94
681	Silver/platinum etc	0.01	0.04	0.10	0.07	0.04
682	Copper	0.06	0.10	0.54	2.26	1.10
683	Nickel	0.08	0.07	0.10	0.09	0.83
684	Aluminium	0.83	0.67	0.73	0.57	0.57
685	Lead	0.18	0.27	0.08	0.42	1.07
686	Zinc	0.00	0.06	0.07	3.23	2.49
687	Tin	0.15	1.08	0.92	0.81	0.04
689	Misc non-ferr base metal	0.03	0.10	0.10	0.30	0.31
691	Iron/stl/alum structures	0.31	0.87	0.63	0.90	0.90
692	Metal store/transpt cont	0.48	0.29	0.37	0.45	0.77
693	Wire prod exc ins electronic	0.98	0.90	1.51	1.24	1.18
694	Nails/screws/nuts/bolts	0.62	0.69	0.99	0.84	0.96
695	Hand/machine tools	0.98	1.04	1.22	1.24	0.86
696	Cutlery	0.80	1.28	1.02	1.30	0.75
697	Base metal household equipments	1.39	1.98	4.60	2.54	1.35
699	Base metal manufac nes	1.07	0.92	1.28	1.16	1.34
7	**Machinery and transport equipment**	0.2	0.2	0.2	0.3	0.4
711	Steam generating boilers	1.29	0.76	0.79	1.66	1.75
712	Steam/vapour turbines	0.02	0.33	0.64	1.32	0.60
713	Internal combust engines	0.44	0.35	0.31	0.49	0.51
714	Engines non-electric nes	0.01	0.06	0.04	0.03	0.08
716	Rotating electric plant	0.21	0.31	0.41	0.83	0.51
718	Power generating equ nes	0.04	0.16	0.28	0.26	0.32
721	Agric machine ex tractor	0.16	0.17	0.25	0.23	0.22
722	Tractors	0.06	0.39	0.49	1.42	1.94
723	Civil engineering plant	0.06	0.08	0.10	0.21	0.43

724	Textile/leather machinery	0.65	0.59	0.86	0.45	0.69
725	Paper industry machinery	0.09	0.16	0.25	0.17	0.34
726	Printing industry machinery	0.44	0.24	0.24	0.47	0.36
727	Food processing machines	0.36	0.48	0.58	0.69	0.89
728	Special industry machinery	0.23	0.20	0.37	0.46	0.32
731	Mach-tools remove material	0.31	0.13	0.19	0.14	0.15
733	Mtl m-tools w/o mtl-rmvl	0.18	0.16	0.33	0.26	0.24
735	Metal machine tool parts	0.45	0.39	0.93	0.92	0.45
737	Metalworking machine nes	0.15	0.29	0.61	0.89	0.62
741	Indust heat/cool equipment	0.12	0.16	0.20	0.51	0.40
742	Pumps for liquids	0.34	0.37	0.59	0.59	0.54
743	Fans/filters/gas pumps	0.24	0.22	0.25	0.48	0.54
744	Mechanical handling equipment	0.11	0.13	0.16	0.15	0.20
745	Non-electr machines nes	0.11	0.19	0.24	0.30	0.31
746	Ball/roller bearings	0.07	0.22	0.60	0.83	0.65
747	Taps/cocks/valves	0.17	0.24	0.52	0.77	0.75
748	Mech transmission equipment	0.12	0.30	0.29	0.69	0.54
749	Non-elec parts/acc machinery	0.14	0.21	0.39	0.69	0.63
751	Office machines	0.17	0.08	0.15	0.20	0.08
752	Computer equipment	0.07	0.16	0.07	0.07	0.05
759	Office equip parts/accs.	0.07	0.19	0.24	0.10	0.10
761	Television receivers	0.18	0.30	0.14	0.09	0.14
762	Radio broadcast receiver	0.03	0.00	0.01	0.03	0.02
763	Sound/tv recorders etc	0.04	0.17	0.08	0.02	0.03
764	Telecomms equipment nes	0.04	0.08	0.06	0.09	0.46
771	Elect power transmission equipment	0.19	0.35	0.46	1.05	0.62
772	Electric circuit equipment	0.20	0.23	0.24	0.35	0.39
773	Electrical distribution equipment	0.47	0.28	0.51	0.53	0.40
774	Medical etc el diag equipment	0.09	0.18	1.05	0.91	0.40
775	Domestic equipment	0.04	0.07	0.11	0.18	0.14
776	Valves/transistors/etc	0.12	0.12	0.05	0.05	0.04
778	Electrical equipment nes	0.50	0.24	0.40	0.30	0.31
781	Passenger cars etc	0.07	0.15	0.04	0.19	0.39
782	Goods/service vehicles	0.19	0.19	0.12	0.20	0.59
783	Road motor vehicles nes	0.96	0.46	0.25	0.58	0.35
784	Motor vehicle parts/access	0.28	0.36	0.36	0.52	0.63
785	Motorcycles/cycles/etc	2.25	2.03	2.08	1.54	2.14
786	Trailers/caravans/etc	0.50	0.11	0.10	0.09	0.10
791	Railway vehicles/equipment	0.22	0.29	0.45	0.27	0.20

792	Aircraft/spacecraft/etc	0.04	0.01	0.10	0.04	0.62
793	Ships/boats/etc	0.14	0.17	0.16	0.90	1.63
8	**Miscellaneous manufactured articles**	**1.7**	**1.5**	**1.6**	**1.4**	**1.3**
811	Prefabricated buildings	0.01	0.00	0.03	0.03	0.21
812	Sanitary/plumb/heat fixt	0.34	0.46	0.49	0.25	0.31
813	Lighting fixtures etc	0.09	0.08	0.10	0.09	0.21
821	Furniture/stuff furnishing	0.03	0.04	0.11	0.33	0.31
831	Trunks and cases	4.86	2.50	2.73	2.06	1.07
841	Mens/boys wear, woven	4.98	4.11	3.97	2.68	1.92
842	Women/girl clothing woven	9.22	6.58	5.73	4.63	2.94
843	Men/boy wear knit/croch	9.79	5.94	8.16	3.99	2.29
844	Women/girl wear knit/cro	3.41	2.56	3.01	2.43	1.23
845	Articles of apparel nes	1.43	1.74	2.18	2.08	1.90
846	Clothing accessories	2.99	1.86	2.61	2.30	1.96
848	Headgear/non-text clothing	7.30	5.58	4.31	2.61	1.85
851	Footwear	2.97	1.83	1.88	1.59	1.02
871	Optical instruments nes	0.49	0.03	0.05	0.02	0.02
872	Medical/etc instruments	0.17	0.16	0.22	0.28	0.25
873	Meters and counters nes	0.01	0.04	0.25	0.23	0.72
874	Measure/control app nes	0.10	0.10	0.14	0.17	0.26
881	Photographic equipment	0.04	0.09	0.07	0.05	0.20
882	Photographic supplies	0.08	0.04	0.08	0.06	0.04
883	Cine fild developed	3.77	5.82	7.22	2.43	6.16
884	Optical fibers	0.15	0.18	0.27	0.23	0.32
885	Watches and clocks	0.09	0.23	0.39	0.16	0.09
891	Arms and ammunition	0.01	0.02	0.22	0.06	0.18
892	Printed matter	0.17	0.26	0.30	0.41	0.44
893	Articles nes of plastics	0.34	0.58	0.55	0.54	0.55
894	Baby car/toy/game/sport	0.31	0.30	0.24	0.21	0.15
895	Office/stationery supply	0.34	1.09	1.42	1.12	0.88
896	Art/collections/antiques	0.02	0.04	0.05	2.54	0.62
897	Jewellery	4.00	4.40	6.83	10.02	8.93
898	Musical instruments/records	0.30	0.80	1.24	0.60	0.68
899	Misc manuf articles nes	0.31	0.52	0.60	0.56	0.47
9	**Commodities and transactions n.e.s**	**0.8**	**0.6**	**0.7**	**0.3**	**0.2**
931	UN Special Code	0.94	0.71	0.77	0.32	0.28
961	Coin non - gold non current	0.00	0.00	0.03	2.14	0.41
971	Gold non-monetary ex ore	0.00	0.00	0.00	0.00	0.02

Source: Authors' calculations using UN COMTRADE database via WITS

Appendix 2. India's Top 15 Exports to South Africa **(US $ Million)**

SITC CODE	PRODUCT DESCRIPTION	1996	SITC CODE	PRODUCT DESCRIPTION	2001
42	Rice	36.22	611	Leather	14.98
611	Leather	19.37	42	Rice	14.50
842	Women/girl clothing woven	13.64	542	Medicaments include vet	10.38
513	Carboxylic acid compound	9.18	334	Heavy petrol/bitum oils	8.63
851	Footwear	8.22	931	UN Special Code	8.37
652	Cotton fabrics, woven	7.62	674	Rolled plated m-steel	7.02
651	Textile yarn	7.15	651	Textile yarn	6.93
658	Made-up textile articles	5.98	851	Footwear	6.07
931	UN Special Code	4.75	531	Synth org colour agents	5.24
841	Mens/boys wear, woven	4.41	658	Made-up textile articles	5.23
542	Medicaments include vet	4.18	75	Spices	5.02
653	Man-made woven fabrics	4.06	841	Mens/boys wear, woven	4.86
75	Spices	3.68	728	Special indust machn nes	4.54
531	Synthetic organic colour agents	3.55	699	Base metal manufac nes	3.83
36	Crustaceans molluscs etc	3.47	36	Crustaceans molluscs etc	3.60

Source: UN COMTRADE via WITS

SITC CODE	PRODUCT DESCRIPTION	2006	SITC CODE	PRODUCT DESCRIPTION	2012
334	Heavy petrol/bitum oils	259.12	334	Heavy petrol/bitum oils	1456.27
781	Passenger cars etc	150.73	781	Passenger cars etc	579.05
42	Rice	93.68	542	Medicaments include vet	299.93
674	Rolled plated m-steel	86.34	764	Telecommunication equipment nes	278.05
542	Medicaments include vet	65.95	782	Goods/service vehicles	211.17
784	Motor vehicle parts/accessories	65.91	42	Rice	148.36
782	Goods/service vehicles	56.10	515	Organic-inorganic compounds	104.29
931	UN Special Code	39.33	667	Pearls/precious stones	62.38
515	Organic-inorganic compounds	34.32	699	Base metal manufac nes	61.74
673	Flat rolled iron/st prod	27.93	931	UN Special Code	59.72
36	Crustaceans molluscs etc	26.22	582	Plastic sheets/film/etc	44.57
667	Pearls/precious stones	21.41	36	Crustaceans molluscs etc	31.32
658	Made-up textile articles	20.74	722	Tractors	30.89
611	Leather	18.55	686	Zinc	30.69
335	Residual petrol. prods	18.10	651	Textile yarn	30.41

Source: UN COMTRADE via WITS