

# An Empirical Analysis of India's Export with BRICS Nation: A Case Study of Silk Product.

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## Abstract

Trade enhancement has always been a chief objective for global inclusion. For attaining such objective formulation of trade blocs has become a prominent technique. Trend of formation of trade blocs has tremendously increased since 1990s. More than one third of the world trade occurs through Regional Integration Agreements. The present study aims at analyzing the trends of production and growth of India's silk products and its export with BRICS nations. The study also accesses the comparative advantage of each trading partner of BRICS in world silk trade. To meet these objectives, statistical tools like CAGR, Standard RCA, Bilateral RCA, coefficient of variance and others has been employed. The study revealed a positive CAGR in India's export of silk with China (9%) and a negative CAGR with Brazil (-20%), Russia (-28%) and South Africa (-20%). India has a 'comparative advantage' in trade with Russia, South Africa and Brazil. Efforts should be made in exploring new markets for silk in these countries. . The policy makers in India should work towards framing such policies which will enhance silk export and proper support should be given to the exporters for innovation.

## Keywords:

Trade Blocs, Export of Silk, BRICS, Revealed Comparative Advantage, Innovation

## Introduction

One of the most crucial parameter for the attainment of growth and stability in the economy is through enhancement of export performance of a country. The contemporary theory of 'Mercantalism', for the first time laid emphasis on the relevance of export and expressed that maximization of net export is the best route towards prosperity of a nation. In fact, a diversified export portfolio implies that the country is capable of dealing with external economic shocks (Gouvea et.al, 2013). The present study focuses on India's export of 'silk products'. China is the largest producer of silk followed by India. Silk occupies a distinct position in the export portfolio of India. The reason behind this is twofold- appropriate infrastructure and manpower for abundant production of raw silk supported by existence of ages old traditionally skilled handicraft & handloom industry. Artisans of India are highly skilled and talented. Silk clothes woven by

them are admired domestically as well as internationally. Silk based garments holds a status of 'pride and glory' in Indian Textile Industry. Woven fabrics of silk like sarees, dress material, home décors etc are exported to leading economies of the world such as U.K, U.S.A, U.A.E, Germany etc.

The study is confined towards accessing India's export of silk products with BRICS nations. The importance of trade blocs can never be understated in international trade. More than one third of world trade occurs through Regional Integration Agreements (RTAs) (Collier et.al, 2002). BRICS is the collaboration of fastest growing emerging economies of the world. India is a member country of BRIC since its inception in year 2006. Later on, South Africa became a member country in year 2008 and BRICS was formed. Since its inception, BRICS has been the centre of study for many research scholars, academicians and policy makers because of its uniqueness. It was for the first time that a group was formed, not on the basis of shared heritage and culture but on the basis of globally relevant socio-political connections (Gouvea et.al, 2013). Presently, BRICS constitutes approx 41% of world population, 31% of earth's landmass and 23.20% of world shared GDP. In the recent past, the growth of BRICS has witnessed certain deceleration with only India and China having a positive growth rate (BRICS Think Tank Council, 2017). The aim of the study is to analyze the Revealed Comparative Advantage of BRICS in export of silk products and to access the trends of India's silk export.

### Literature Review

Anitha (2011) has done an analytical appraisal of the Indian Silk Industry. China ranks number 1 in total production, followed by India with total production of 15%. Export has shown satisfactory trends. Author lays emphasis on need for reforms in marketing and processing of cocoon in order to increase sale domestically as well as internationally.

Gangopadhyay (2009) viewed the Indian Silk Industry as a major sector for alleviation of poverty because of potentialities such as rich biodiversity, valuable foreign exchange earnings, high rate of employment for women, low capital investment etc.

Umesh et. al. (2009) has done a pre and post WTO comparative study to analyze the impact of WTO formation on Indian Silk Industry. The result showed an increase in productivity of non-mulberry silk. A dissatisfactory result was witnessed in the production of raw silk and import of overall silk goods.

Popescu (2013) has done an analytical review of trends of production of 'silk cocoons' and 'raw silk' at world level, giving major stress on performance of EU. The study

disclosed a declining trend in production during the study period of 2007-2010 in the European markets. The reason behind this was shift in the preference of consumers of Europe from silk to synthetic fibres.

Singh et.al. (2013) appraised the export performance and export competitiveness of Indian Textile Industry during 2009-2011. Balassa's Revealed Comparative Advantage index was employed. The study revealed a comparative advantage in trade for commodities like cotton, carpets, manmade filaments, manmade staple fibres and vegetable textile fibres. Commodities like silk, wool and coated textile fabrics revealed a disadvantage in trade.

Feng et.al (2009) revealed a deteriorating trade relation between India and China due to tough competition faced by Indian market from superior quality Chinese silk thereby imposing anti-dumping charges on Chinese silk.

Gouvea et. Al. (2013) has accessed the export diversification among BRIC nations using Markowits and Single Index Model. It was opined that China has the most diversified export portfolio. China is having largest share of knowledge intensive and manufactured products. Brazil and Russia is having the riskiest portfolio.

Gammeloft (2008) has thrown light on the trends of Outward FDI (OFDI) from emerging economies, focusing specifically on BRICS nation. The study revealed that Russia has the highest flow of OFDI during the study period followed by Brazil, China, India and South Africa respectively.

Raghuramapatrani (2015) has analyzed the potentialities of trade among BRICS nations with respect to 14 major sectors, some of them being food, iron & steel, pharmaceuticals, telecommunication, textile, fuel & mining etc. Trade Intensity Index and RCA Model were used. The study opined that the BRICS nation are complimentary to each other rather than being competitive, having high potentialities of trade.

### Objective of the Study

1. To overview the production and growth of Indian Silk Industry.
2. To evaluate the trends of India's Silk export with BRICS nation.
3. To assess the comparative advantage of BRICS nation in world silk trade.

### Research Methodology

The study is purely based on data collected from secondary sources like International Trade Centre, Central Silk Board, and International Sericulture Commission etc. Various journals, articles, magazines, government reports

etc were reviewed for this purpose. Time series data of 10 year, from 2009-2018 as per 2 digit Harmonized System classification has been taken to study the export trends and comparativeness. Simple statistical tools like AGR, CAGR, Percentage etc, are used to evaluate the export trends. To analyze the trade comparativeness, Standard RCA and Bilateral RCA is used.

### Standard RCA

The concept of 'comparative advantage' was first coined by David Ricardo in year 1817. A country is said to have comparative advantage over another country, if it can produce a particular commodity more efficiently than the other country. Here, RCA Index proposed by Balassa (1965) is used to compute the 'relative advantage' and 'relative disadvantage'. The numerator represents the share of a country's export of a given commodity (here silk) in its total export and the denominator represents the share of that commodity in world total export. The formula is:-

$$RCA = \left( \frac{X_{ik}}{X_i} \right) / \left( \frac{X_{wk}}{X_w} \right)$$

Where,

$X_{ik}$  = India's Export of Commodity k

$X_i$  = India's Total Export

$X_{wk}$  = World Export of Commodity k

$X_w$  = World Total Export

RCA index ranges from 0 to  $\infty$ . RCA greater than 1 indicates that the country is having 'comparative advantage' in trade of that commodity while RCA less than 1 indicates that the country is having 'comparative disadvantage' in trade of that commodity.

### Bilateral RCA

Standard RCA is the comparison of a country's trade of a particular commodity with the world. BRCA, on the other hand, uses as denominator a comparator country's share of export of the commodity in its total export. The formula is:-

$$BRCA = \left( \frac{X_{ik}}{X_i} \right) / \left( \frac{X_{jk}}{X_j} \right)$$

Where,

$X_{ik}$  = India's Export of Commodity k

$X_i$  = India's Total Export

$X_{jk}$  = Country j's Export of Commodity k

$X_j$  = Country j's total Export

The interpretation technique is same as standard RCA.

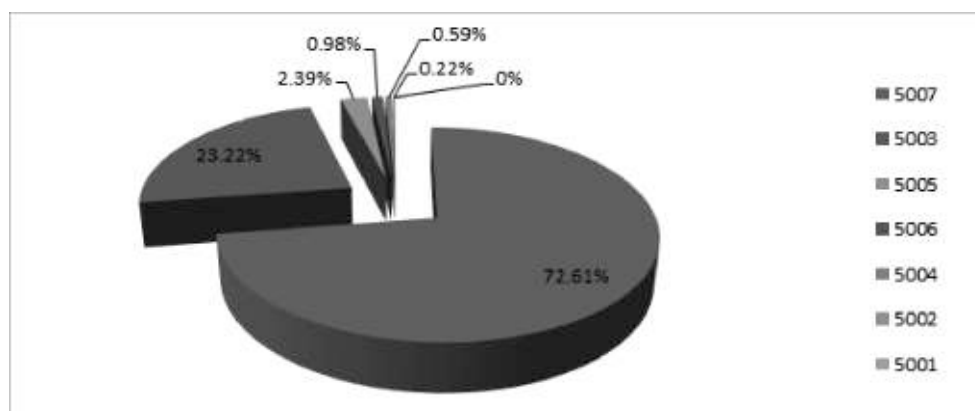
### Silk-A Profile

Silk products are allured by people all across the world for its uniqueness, beauty and grace. Silk-'the Queen of Textile' represents elegance and luxury. India occupies a prominent position in production of this high valued product. The country has bagged 2<sup>nd</sup> position in world silk production with a share of 22.09%\* in year 2018. China is the leader in production with a total share of 75.16%\* in the same year. India has the highest consumption level of silk in the world. India is home to wide ranging varieties of silk. Interestingly, India is the only country in the world where all the four major varieties of silk namely- Mulberry, Tasar, Eri and Munga are produced. The total production of raw silk accounts to 35,468 metric ton. Out of the four varieties produced, the major portion towards production is contributed by mulberry silk with a share of 71.46%\*. Tasar, Eri and Munga contribute 8.04%\*, 19.48%\* and 0.66%\* respectively.

Over a few years, the Indian Silk Industry has shown tremendous growth. Production has increased from 26,480 metric tons in year 2013-14 to 35,468 metric tons in year 2018-19. The industry has also contributed significantly towards employment by utilizing both traditional as well as modern techniques of production. The employment has witnessed an increase from 78.50 lakhs in year 2013-14 to 91.78 lakhs in year 2014-15. However the export and import has shown a dissatisfactory result. Export has shown a diminution from 2480.88 crores in year 2013-14 to 2031.88 crores in year 2018-19 and import has shown an increase from 896.44 crore in 2013-14 to 1041.40 crores I year 2018-19.

In this study, the focus is to analyze the export trends and competitiveness with BRICS nation. For this purpose, export data up to 2 digit HS code has been taken. Here, 'Silk Products' include Cocoons(5001), Raw silk(5002), Silk and yarn waste(5003), Silk yarn(5004), Yarn spun from silk waste(5005), Yarn spun from silk waster put for retail sale(5006) and Woven fabric of silk(5007).

\*Author's calculation based on data collected from International Sericulture Commission

**Figure 1: Composition of India's Silk Export at four level HS classification**

Source- Author's calculation based on data from International Trade Center

\*\*Author's calculation based on data collected from Central Silk Board

Figure 1 represents the composition of India's export of silk at four level HS classification. It can be stated that the contribution of Woven fabrics (5007) is highest in export of Silk with 72.61% of share. Silk and yarn waste (5003) contributes 23.22%. Yarn spun from silk waste (5005), Silk yarn for retail sale (5006) and silk yarn-non retail (5004) contributes very negligible amount, share being 2.39%, 0.98% and 0.59% respectively. Share of silk cocoon is lowest with value of 0.002% only.

#### Exports Trends of India-BRICS Silk Trade

Table 1 demonstrates trends of India's total export of silk,

export of silk to BRICS nation (aggregate) and percentage share of BRICS in India's total export of silk. Export with BRICS has shown an increasing trend from \$9,196 thousand in year 2009 to \$14,140 thousand in year 2018. A slight downfall was witnessed in year 2011 and 2017. However, overall export of silk with the world depicts a different scenario. A declining trend was witnessed in this case. The share of BRICS has shown a continuous increase from 3% in year 2009 to 17% in year 2018. The reason for this increase is twofold, increase in export of silk to BRICS supported by decline in total export of silk to the world.

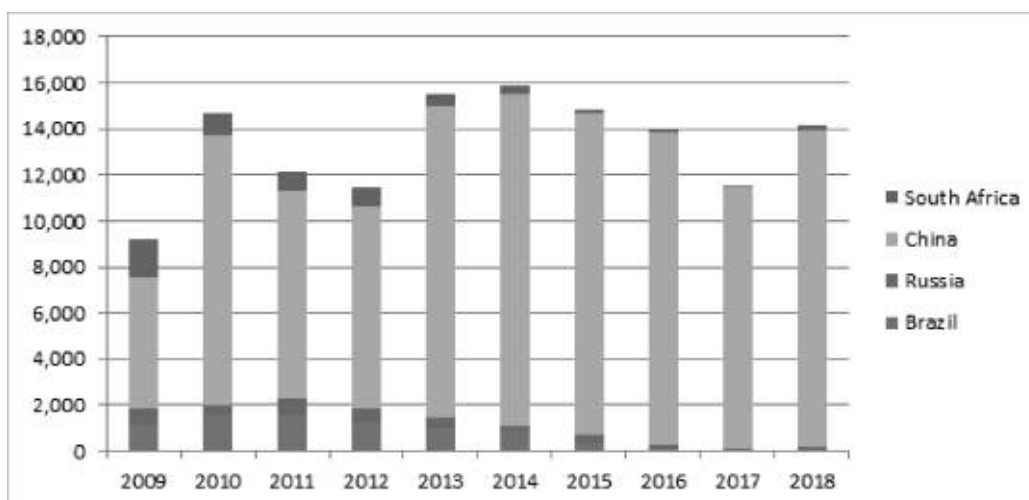
**Table 1: Share of BRICS (aggregate) in India's total export of silk**

Year	India's Export to BRICS	India's export to World	Share
2009	9,196	271,135	3%
2010	14,671	335,203	4%
2011	12,113	259,747	5%
2012	11,461	163,530	7%
2013	15,495	164,301	9%
2014	15,856	140,579	11%
2015	14,855	111,222	13%
2016	14,013	90,684	15%
2017	11,559	76,576	15%
2018	14,140	82,545	17%

Source: International Trade Centre and Author's Calculation

Figure 2 demonstrates the share of each trading partner of BRICS in export of silk. It can be clearly seen that China has been consistent in maintaining the largest share during the entire study period. The share of China was \$5700 thousand in year 2009, followed by South Africa, Brazil

and Russia, share being \$1635, \$1261 and \$600 thousands respectively. In 2018, China's share increased to \$13802 thousand. However, the share of South Africa, Brazil and Russia declined drastically to \$177, \$ 139 and \$22 thousand respectively.

**Figure 2: Share of individual trading partners in India's Silk Export to BRICS**

Source: International Trade Center

To analyze the growth and decline pattern, Table 2 is computed. The table shows the Compounded Annual growth rate (CAGR), Annual Growth Rate (AGR) and the Coefficient of variation (C.V). Trade with Brazil tremendously decreased, with negative AGR from year 2012 to 2017. After 6 consecutive years, trade with Brazil witnessed a positive AGR of 65.53% in year 2018. Russia's AGR was highest in year 2011, share being 71.08%. Trade with South Africa was highest in year 2018 with growth

rate of 59.46%. CAGR of China was positive with growth rate of 9%. CAGR of Brazil, Russia and South Africa showed negative growth rate, value being -20%, -20% and -20% respectively. To analyze the steadiness in trade, C.V. is computed. Trade with South Africa showed maximum fluctuation with C.V. of 86%, followed by Brazil and Russia, C.V. being 73% and 69%. Trade with China was most steady with minimum C.V. of 25%.

**Table 2: Pattern of India's trade with BRCS**

Year	Brazil	Russia	China	South Africa
2009	-	-	-	-
2010	27.84%	-37.17%	104.96%	-38.90%
2011	1.80%	71.09%	-22.87%	-18.32%
2012	-20.96%	-13.02%	-2.84%	3.92%
2013	-14.88%	-28.70%	53.91%	-39.15%
2014	-21.38%	-46.75%	7.10%	-33.53%
2015	-48.04%	11.74%	-3.15%	-44.90%
2016	-80.93%	-36.13%	-2.39%	-30.16%
2017	-1.16%	-61.84%	-17.14%	-15.91%
2018	63.53%	-62.07%	22.09%	59.46%
<b>CAGR</b>	<b>-20%</b>	<b>-28%</b>	<b>9%</b>	<b>-20%</b>
<b>C.V</b>	<b>73%</b>	<b>69%</b>	<b>25%</b>	<b>86%</b>

Source: Author's calculation based on data from International Trade Statistics



### Analysis of Revealed Comparative Advantage of BRICS Nation in Silk Export

#### Standard RCA

Table 3 represents the Standard Revealed Comparative Advantage of all the trading partners of BRICS in world silk trade for a period from 2009 to 2018. It is seen that India and China are the only country having a 'comparative advantage' in silk trade during all the years of the study period. The RCA index of India was highest in year 2010 with the value of 7.02. The RCA index of India declined gradually and in year 2018 the index was only 2.31.

Whereas, RCA index of China showed a steady trend. It was highest in year 2011 with value of 4.95 and lowest in year 2015, with value of 3.85. In year 2018, China's index was 4.13 which is higher than India's index in the same year. Brazil's RCA showed a disadvantage from year 2009 to 2014 as the index was less than unity. However, from year 2014 onwards, the RCA of Brazil showed an 'advantage' in trade. In year 2018, Brazil's index was 1.27. Russia's RCA index was 0 (at 2 decimal place), throughout the study period. South Africa's trade also revealed 'disadvantage' throughout the study period.

**Table 3: Standard RCA of BRICS nations**

Year	India	Brazil	Russia	China	South Africa
2009	6.80	0.77	0.00	4.75	0.02
2010	7.02	0.80	0.00	4.81	0.06
2011	4.64	0.70	0.00	4.95	0.09
2012	3.30	0.76	0.00	4.87	0.12
2013	2.95	0.91	0.00	4.46	0.14
2014	2.90	0.97	0.00	4.25	0.18
2015	2.90	1.03	0.00	3.85	0.27
2016	2.55	1.19	0.00	4.04	0.20
2017	2.19	1.28	0.00	4.16	0.24
2018	2.31	1.27	0.00	4.13	0.28

Source: Author's Calculation based on data from International Trade Statistics

#### Bilateral RCA

Table 4 represents the bilateral RCA of India with other trading partners of BRICS in silk trade. It is the ratio of India's share of silk in total export to comparator country's share of silk in total export. The comparator countries are

Brazil, Russia, China and South Africa respectively. The study revealed that India has a 'comparative advantage' in trade with Brazil, Russia and South Africa in all the years as the BRCA index was more than 1. However, trade with China revealed a 'disadvantage' from year 2011 onwards.

**Table 4: Bilateral RCA with BRCS**

Year	Brazil	Russia	China	South Africa
2009	8.79	42083.33	1.43	393.43
2010	8.72	75483.83	1.46	118.11
2011	6.60	63631.72	0.94	52.14
2012	4.36	6442.58	0.68	28.23
2013	3.25	1025.34	0.66	21.75

2013	3.25	1025.34	0.66	21.75
2014	3.01	1632.55	0.68	15.92
2015	2.82	2159.37	0.75	10.83
2016	2.15	1420.71	0.63	12.86
2017	1.71	2998.76	0.53	8.96
2018	1.82	1594.64	0.56	8.20

Source: Author's Calculation based on data from International Trade Statistics

## Conclusion

Indian Silk has huge potential of enhancing trade with other countries, thereby increasing the foreign exchange reserve of our nation. The study of composition of silk products revealed that the share of 'woven fabrics of silk' is highest with 72.61% share in total silk export. Focus should be done on further enhancement of this share by promoting manufacturing and export of woven fabrics like sarees, dress materials, scarfs, carpets, home and décor items like cushion cover, curtains etc. Further, the study entailed that CAGR of India's export is positive only with China. Trade with Brazil, Russia and South Africa disclosed a negative CAGR of -20%, -28% and -20% respectively. However, BRCA index revealed 'comparative advantage' in trade with Brazil, Russia and South Africa. This implies that there is huge potential in trade with these nations. Effort should be made in increasing the export by exploring new markets for silk in these nations. RCA index revealed that India, China and Brazil has a 'comparative advantage' in export of silk but Russia and South Africa has a 'comparative disadvantage' in export with world. Russia and South Africa should focus on export of those products in which it has comparative advantage. The policy makers in India should work on framing such policies which will enhance silk export and support should be given to the exporters for innovation.

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