

Indian Textile and Apparel Exports and COVID-19: Insights from International Trade Data

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Exports have always been viewed as an engine of economic growth. Export competitiveness is a country's ability to compete globally with growing export capacity, diversifying export baskets, and upgrading export technology. One of the key indicators of the extent of export competitiveness of an industry is the degree of its participation in international trade. Textile and apparel (T&A) is a critical export sector and an important contributor to India's economic growth. In 2021, India exported U.S.\$16.5 billion (3.35% of world share) worth of apparel and U.S.\$18.11 billion (5.79% of world share) worth of textiles (WTO, 2022). The Indian textiles and apparel industry also has a major presence in the Indian economy and is currently one of the largest and most important industries in terms of output, foreign exchange earnings, and employment. The industry contributes 2.3% to India's GDP and accounts for 13% of industrial production and 12% of the country's export earnings (AEPC, 2021).

Covid-19 also exposed the vulnerabilities in the supply chain of the Indian apparel and textile export firms. Though India is one of the largest producers of man-made and natural fibers, the firm imports man-made fibers from China due to poor quality issues within the Indian textile industry. India was hit hard by the pandemic. The Indian economy shrank by 7.5 percent in 2020 due to disruptions in the market (Schmall, 2020). This was even worse for the Indian apparel industry, which lost its labor force due to labor migration and lockdown and saw severe disruptions in its supply chain (Chaliawala, 2020). Covid-19 also had a drastic impact on India's export competitiveness.

Competitiveness is particularly important for a country's performance in the tradable sector. For analyzing country competitiveness in different industries, many researchers have applied the revealed comparative advantage (RCA) approach (Utkulu and Seymen, 2004; Batra and Khan, 2005; Balasubramanyam and Wei, 2005; Kilduff and Chi, 2007; Gao, 2007). Multiple studies have used the RCA framework to measure competitiveness. Kilduff and Chi (2006) investigated the US textile complex using RCA and RSCA and found that developed countries are stronger in capital intensive sectors. RCA is defined as the share of the commodity j in the export country i (numerator) to the share of commodity j in the export of the world (denominator). RCA values range from 0 to ∞ , values below 1 indicate a country's comparative disadvantage, whereas values

equal to 1 suggest neutral advantage, and values above 1 indicate comparative advantage. The research uses RCA, and its variant normalized revealed comparative advantage (NRCA).

The study uses monthly data from the United Nations Commodity Trade database (UNCTAD, 2022) and the WTO for the years 2019, 2020, and 2021. Product level trade data (HS code 50 to 67) from the United Nations Commodity Trade database for the 36 months (from January, 2019 to December 2021) was used for this study. RCA and NRCA are calculated for the two digit HS code to understand the impact of Covid-19 on export comparative advantage for the textile and apparel categories during this period and subsequently provide the basis for identifying products with export comparative advantage. The values for RCA and NRCA are ranked within each month, and an accompanying non parametric rank correlation is applied to evaluate the consistency between the RCA and NRCA indices. RCA and NRCA at the four digit HS code levels is generated to identify specific textile and apparel subcategories with export comparative advantage and the impact Covid-19 had.

The RCA and NRCA indices that suggest advantage during the Covid-19 period include twelve codes: HS50 silk; HS52 cotton; HS53 vegetable textile fibers; HS54 man made filaments; HS55 man made staple fibers; HS57 carpets and other textile floor coverings; HS58 fabrics (special woven fabrics, tufted textile fabrics, lace, tapestries, trimmings, embroidery); HS61 apparel and clothing accessories (knitted or crocheted); HS62 apparel and clothing accessories (not knitted or crocheted); HS63 textiles (made up articles; sets; worn clothing and worn textile articles; rags); HS64 footwear; and HS67 feathers and down (articles made of feather or of down; artificial flowers; articles of human hair). The non-parametric correlation test to evaluate the relative rankings of RCA and NRCA (1999 to 2018) indicates a positive Spearman's rho ($\rho = 0.75645$, p-value <0.001) that suggests the correlation between RCA and NRCA.

Based on the analysis, cotton (HS52) exports, followed by apparel and clothing accessories (not knitted or crocheted) (HS62), textiles (made up articles; sets; worn clothing and worn textile articles; rags) (HS63), and apparel and clothing accessories (knitted or crocheted) (HS61) were found to suffer competitive disadvantage during May 2020 to January 2021 period. Investigation of the subcategories within each code (disaggregation) was done to identify textile and apparel products with export disadvantages during the Covid-19 period. RCA and NRCA calculations at the four digit level, identified 72 sub categories that suffered a competitive disadvantage during May 2020 to January 2021 period. Barring this nine month period, the HS5201 subcategory indicated the largest NRCA magnitude among textile and apparel products for the 36 month

period, followed by HS5203, HS6205, HS6208, HS6106, HS6302, HS6307, HS5209, HS5211, and HS 6303.

The research provides insights into the textile and apparel competitiveness at the product level (i.e. two digit harmonized code) and the product sub category level (i.e. four digit harmonized code) of India during the Covid-19 period. The study identifies the specific products that attain comparative advantage and products that suffered comparative disadvantage from May 2020 to January 2021. Product level findings provide stakeholders, including practitioners and policymakers, with comparatively precise evidence to identify opportunities and invest resources. From an academic perspective, the study contributes to the work on RCA identification by incorporating the NRCA and RSCA into the design. Future research should examine the comparative advantage and export trends among the four digit HS sub categories of the Indian textile and apparel industry during the Covid-19 period.

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