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FINDINGS

To meticulously assess the impact of these FTAs, the study employed the Gravity Model of International Trade, implementing the Panel Poisson Pseudo Maximum Likelihood (PPML) estimation technique. Mainly two-panel models were estimated: one considering India's crude steel exports and the other focusing on imports as dependent variables. The models considered several independent variables, such as the GDPs of India and partner countries, distance, a common border (dummy variable), and an FTA (dummy variable). The findings revealed that while India's GDP and those of its partner countries positively influenced the imports and exports of crude steel, distance acted as a significant barrier due to increased transportation costs. Surprisingly, sharing a common border did not significantly impact the steel trade. Moreover, the FTA dummy variable analysis showed contrasting effects on imports and exports. The coefficient of the FTA dummy for the model with imports as a dependent variable was 1.260 (P value: 0), revealing that India's imports of steel products increased significantly after free trade agreements, while the coefficient of the FTA dummy for the model with exports as dependent variable was -0.462 (P value: 0.002). This implied that the FTAs signed by India with Japan, South Korea, and ASEAN have not produced positive results for the growth of Indian crude steel product exports. These insights point towards the need for strategic policy interventions by the Indian government. To enhance India's standing in the global steel market and leverage the potential benefits of FTAs and Regional Trade Agreements (RTAs), a nuanced approach, addressing the identified challenges and capitalizing on opportunities is crucial. Such measures would improve India's export capabilities and overall economic resilience and competitiveness on the global stage.

The study explained the nuances of India's steel product competitiveness within the auspices of Free Trade Agreements (FTA) with various partners, notably zeroing in on the underlying reasons for the subpar performance of Indian crude steel products in these FTA nations. Employing an extensive array of trade indices and analytical tools, the research diligently probed into the dynamics propelling a significant surge in imports from FTA/Regional Trade Agreement (RTA) partners, juxtaposed against the dismal export performance of India's crude steel offerings. A pivotal finding from the research was the conspicuous comparative advantage wielded by Japan and South Korea in the steel product domain, a conclusion drawn from the intricate analysis through the Revealed Comparative Advantage (RCA) and Bilateral Revealed Comparative Advantage (BRCA) indices. The evolution of comparative advantage post-FTA was noteworthy; for instance, Japan witnessed its count of crude steel products with a comparative advantage increase from 19 to 21. Similarly, South Korea saw its count ascend from 15 to 18, and for ASEAN, a modest rise from 1 to 3 was observed. In contrast, China experienced a slight reduction from 29 to 25. In this landscape, India's static figure stood at 13 products, unchanged in both pre- and post-FTA periods, highlighting a stagnation in competitive positioning. The study further unraveled the trade complementarity scenario, wherein India's engagement with its FTA markets languished behind the vibrant dynamics of Japan and Korea's engagement with the Indian market. For example, the Trade Complementarity Index (TCI) between India and Japan, though improved from 53.6

in the pre-FTA epoch to 63.7 post-FTA, paled in comparison to Japan's robust TCI with India, which slightly tapered from 79.9 to 79.3 in the FTA period. This trend underscored the adeptness of FTA partner countries' steel products in aligning with the Indian market, a domain where India's offerings trailed. A critical examination through the lens of the Herfindahl-Hirschman Index (HHI) revealed a significant disparity in the diversity of export baskets, with Japan and Korea presenting a much-varied portfolio to India than vice versa. India's steel export product assortment to South Korea noted a dwindling diversification in the post-FTA era, as evidenced by a shift in the HHI index from 0.62 pre-FTA to 0.71 post-FTA, a trajectory that underscores a narrowing in product diversity relative to South Korea's export spectrum to India. Adding to the competitive analysis, a pricing and quality perception analysis showed growing inefficiencies of Indian steel products in the South Korean and Japanese markets. This was mainly because market share increased very little, even though unit prices increased. Conversely, China marked a significant uptick in both market share and unit pricing across South Korea, Japan, and the ASEAN region, heralding an elevation in the quality perception of Chinese steel products. Lastly, the exploration of the TiVA (Trade in Value Added) database shed light on the relative disconnect of the Indian metal industry from the supply chains in Japan and South Korea. The post-FTA era witnessed an expansion in the forward linkages of South Korea and Japan with the Indian market, a contrast to the more insular position of India in their markets. While illustrating the competitive and complementarity landscapes of India's steel product trade under FTA frameworks, this expansive study also gestured towards critical leverage points for policy formulation and strategic orientation aimed at bolstering India's foothold in the global steel trade arena.

The study also looked at the multifaceted challenges confronting Indian steel producers, particularly the difficulties associated with exporting under Free Trade Agreements (FTAs) and their competition from their counterparts in South Korea, Japan, and ASEAN countries. A significant impediment is the inherently capital-intensive nature of the steel industry. This challenge is exacerbated in India due to the higher financing costs it faces compared to other countries within the FTA framework. Despite the Reserve Bank of India's efforts to alleviate some of this financial strain by lowering policy repo rates, the cost of financing remains a hurdle, undermining the competitiveness of Indian steel producers at a time when global steel demand is subject to significant fluctuations. Moreover, logistical inefficiencies present considerable challenges for Indian steel producers who depend on rail for inland transport. These logistical constraints undermine their ability to compete effectively with counterparts in FTA countries that benefit from more efficient logistics and transport infrastructure. The competitiveness of Indian steel producers is further compromised on the global stage by the imposition of high taxes and royalties on critical raw materials like coal and iron ore. These levies inflate the cost of production, making Indian steel less competitive internationally. The situation is exacerbated by the increase in VAT and elevated import tariffs on essential inputs such as coking coal following the establishment of FTAs. Although there have been some reductions, these measures still position Indian producers at a competitive disadvantage relative to their FTA peers. Additionally, high electricity costs, particularly for those operations relying on electric arc furnaces, significantly impact profitability and the ability to compete in international markets. Another notable barrier for Indian steel exporters is the widespread prevalence of Non-Trade Measures (NTMs) in countries like ASEAN, Japan, and South Korea. These NTMs encompass various regulatory and compliance hurdles, from environmental standards to product safety regulations. To overcome these barriers and enhance India's steel sector's global competitiveness, a resolution necessitates harmonizing regulations, laws, and trade procedures. Such efforts would streamline international trade and foster a greater degree of openness, enabling Indian steel producers to navigate the complexities of global markets more effectively and bolster their competitive stance on the international stage.