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Jute Manufacturing Sector in India: A Sustainable Potential for Export-Driven Growth

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ABSTRACT

The jute manufacturing sector in India, historically known as the 'golden fibre' industry, continues to hold substantial potential for export-led growth amid the global transition toward sustainable and eco-friendly materials. This paper analyses the export performance and competitiveness of India's jute manufacturing sector in comparison with Bangladesh, covering the period 2010–11 to 2021–22. Using panel data regression analysis, the study investigates key determinants such as export price, domestic price, domestic consumption, and international price to assess their influence on export performance. The findings reveal that while India possesses a strong raw material base and significant manufacturing capacity, its export competitiveness is constrained by higher production costs, technological obsolescence, and policy inconsistencies. Export price shows a positive relationship with export growth, whereas domestic price and consumption exert a negative impact. The analysis also highlights that domestic price stabilization policies under the Minimum Support Price (MSP) regime and the Jute Packaging Materials (Compulsory Use in Packing Commodities) Act, 1987, though beneficial for farmers and rural employment, have restricted export supply elasticity. In contrast, Bangladesh's cost efficiency and export-focused policy framework have strengthened its global dominance. The paper concludes that modernization of jute mills, R&D investment, diversification into value-added jute products, and enhanced supply chain integration are crucial for India to reclaim its global position. Strengthening eco-labeling, innovation, and sustainability alignment will enable the jute sector to contribute significantly to India's export diversification and green industrial transformation

1. Introduction

The jute industry in India traces its roots to the 1850s when the 1st Jute Mill was established in India under the British Empire. Due to the high demand of jute products in the European market, jute became an important cash-crop in colonial India by the late nineteenth century. The industry witnessed significant growth during the early 20th century, with more jute mills being set up in various parts of Bengal and other regions like Bihar, Uttar Pradesh, and Madhya Pradesh. Jute became one of the most important industries in British India, providing employment to a large

1. **Sustainable products** are products either sustainably sourced, manufactured or processed and provide environmental, social, and economic benefits while protecting public health and the environment throughout their whole life cycle, from the extraction of raw materials to the final disposal (Frank-Martin, B., et al. 2009)

number of people. The Jute Industry played a crucial role in the Indian economy, contributing significantly to exports and foreign exchange earnings. Jute products, especially jute sacks and bags, were in high demand globally for packaging various commodities like grains, sugar, and cement.

With growing global awareness of environmental issues, demand for sustainable product [Sustainable products are products either sustainably sourced, manufactured or processed and provide environmental, social, and economic benefits while protecting public health and the environment throughout their whole life cycle, from the extraction of raw materials to the final disposal (Frank-Martin, B., et al. 2009)] is rising rapidly. The significance of Jute is increasing more than ever as it qualifies all the criteria of a sustainable product. It is 100% Biodegradable that decomposes naturally and reduces the amount of synthetic waste in the environment. India's geographical advantage in jute cultivation has positioned it as one of the leading producers of jute globally. Currently, India exports an average of 121.3 thousand M.T. of jute goods every year with a value of USD 333.3 million (Office of Jute Commissioner). The export value of Hessian, Sacks and Yarn in 2022-23 stood at USD 83.3 million, USD 128.8 million and USD 10.9 million respectively with a CAGR of 9% (Indian Jute Mills Association). As a labour-intensive industry, this sector has the potential to create a significant number of employments especially for economically disadvantaged sector. Currently, there are approximately 4 lakh people engaged in this industry, including those who depend on related industries both upstream and downstream. India is the largest producer of jute and jute goods, but only 10% of its total production is exported. In contrast, Bangladesh, the second-largest producer of jute, is the world's largest exporter of jute and jute goods. This shows India’s huge demand for jute packaging material within its domestic market. A study based on factory level data involving data envelopment analysis to estimate the efficiency of Indian Jute Industry indicates that though efficiency has improved over time, policy needs to focus on continuous efficiency improvement (Das, 2002). There has been a fluctuating trend in the growth of the Jute export from India throughout the period between 1990-91 to 2015-16. A Rank Based Quotient (RBQ) analysis for constraints also reveals that lack of organised market followed by high labour costs are the two major hindrances on the path of growth of the Indian Jute Industry (Kalpana Kumari, et al. 2020). Bangladesh is India's primary competitor in terms of jute and jute goods production and export. Though Bangladesh is the top exporter of raw jute, India is in the leading position of exporting jute manufacturing goods (Rahman and Khalid, 2011) A study conducted on the Bangladeshi Jute Industry, focusing on the export demand of jute and jute goods using GDP as income and Export Value Unit Index (EVI) as the price variable, considering the top five jute export destinations - USA, UK, Belgium, Germany, and Australia, suggests that the income of the USA and Australia were the only significant determinants of Bangladesh's jute exports. (Md. Asrafuzzaman, 2021). Australia has been identified as a key export market for Bangladesh. In 2023, Australia

imported 69% of its jute and other textile bast fiber yarn from Bangladesh, which is about USD 13.4 thousand. In contrast, it imported USD 5.07 thousand from India, which accounts for 26% of its total imports (Trend Economy). A cost-based pricing strategy, considering marginal costs at each stage, avoiding price escalation and maintaining optimal profit margins for distribution channels has helped Bangladesh to retain its leadership position. (Akter, 2018).

The discussion emphasises the importance and significance of Jute industry and the opportunity that will be generated in future. In a period when the global food grain packaging industry is witnessing significant growth as a result of population growth and the modernisation of the food supply chain and the industry is looking for a sustainable and eco-friendly alternative to plastic, India should increase its focus on the jute manufacturing industry to capitalise on this opportunity.

The next part of the study discusses the current export and consumption trends of the three primary jute manufacturing products (Hessian, B-Twill Sacks and Jute Yarn). Followed by a detailed analysis of the factors that influence the export demand for these products.

Graphical Representation of the Export Scenario and the Domestic Consumption

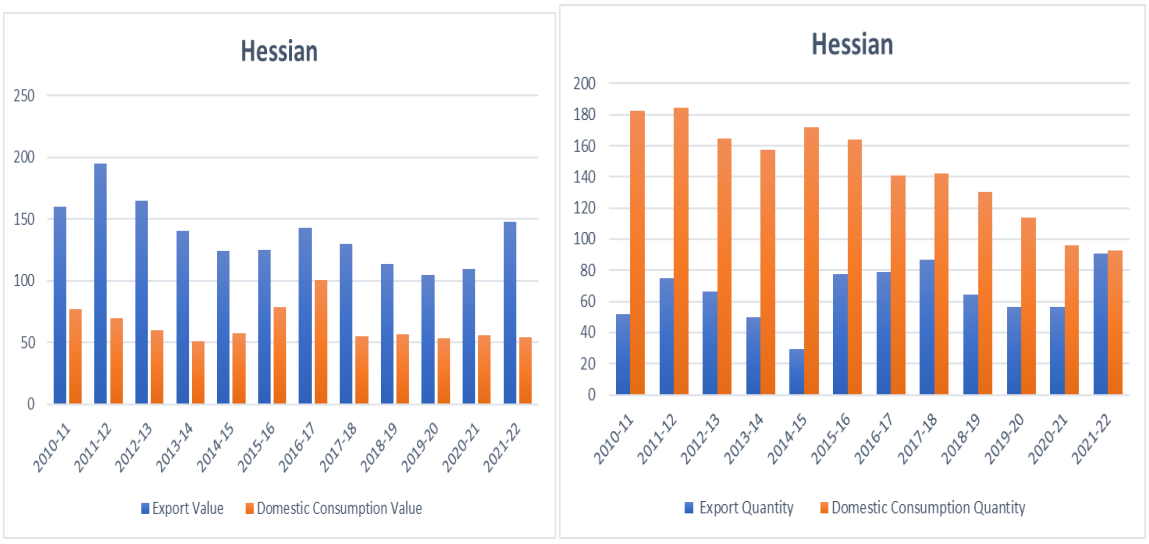

Figure-1 Comparison between export and Domestic Consumption value and quantity. Source: National Jute Board (2015-16 to 2021-22), FAO report (2010-2014) and Author's calculation

In the year 2010, India's domestic consumption of Hessian, was almost 72% higher than its export quantity. Despite this, the export earnings for Hessian were more than 50% of the total value of domestic sales. India consumed a substantial amount of Hessian for domestic

purposes, but the earnings from exports exceeded those from domestic sales. Due to the inflationary influence of foreign currency, it is generally more beneficial for a country to boost export earnings. Over the years, there has been a gradual reduction in the gap between the exported quantity and the amount consumed domestically. Recent data shows that in the year 2021-22, both the quantity of Hessian sold domestically and the quantity of Hessian exported are roughly equal. However, this is not only due to the increase in export quantity but largely due to a gradual decrease in domestic consumption since 2016-17. The ideal situation would be to increase export quantity without hampering the domestic demand.

Figure-2 Source: National Jute Board (2015-16 to 2021-22), FAO report (2010-2014) and Author's calculation

India has a significant and growing domestic demand for jute yarn, which serves as a raw material for producing jute sacks and various diverse jute products. The demand is so high that India needs to import jute yarn from Bangladesh. In the first quarter of the 2022-23 fiscal year, India imported 14.64 thousand metric tons of jute yarn, amounting to ₹1,425.94 million, while it exported 2.91 thousand metric tons valued at ₹369.09 million (Jute Commissioner of India). The surge in this demand increases with the increase in demand for other jute products. In the year 2021-22, the domestic consumption quantity is almost 100% more than the export quantity.

Figure-3 Source: National Jute Board (2015-16 to 2021-22), FAO report (2010-2014) and Author's calculation

The Ministry of Textile has issued a press release stating that the government of India has approved mandatory packaging norms for foodgrains and sugar under the JPM Act 1987. Under these norms, 100% of food grains and 20% of sugar must be packed in jute bags exclusively. This reservation norm is approved annually based on the availability of jute sacking bags in the supply chain. However, production units often fail to meet domestic demand generated by the reservation norms. The only feasible solution to this problem is to increase the production capacity for which the government's intervention is required along with the production units' genuine intention for upgradation.

Econometric Analysis

Identifying the pivotal factors that influence the export price and demand for Indian jute goods are the main objectives of the study. The findings will be analysed and discussed further to provide some valuable insights that will ultimately help the Industry overcome its age-old problems and subsequently generate more export earnings for the country.

Panel Data Regression has been conducted for the period of 2010-11 to 2021-22 to understand the factors that influence the export earnings and export quantity of the jute manufacturing products namely Hessian, B-twill Sacks and Jute Yarn.

Econometric Models

i. $val\_exp_{i,t} = \beta_0 + \beta_1\ p\_exp_{i,t} + \beta_2\ p\_dom_{i,t} + \beta_3\ p\_comp\_contr_{i,t} + \beta_4\ dom\_cons\_qty_{i,t} + Ɛ$.....(1)

Where,

Val_exp = value of export, P_exp = price of export, P_dom = domestic price, P_comp_contr = export price of competing country, dom_cons_qty = domestic consumption quantity, the suffix i = different jute products category, the suffix t = years ranging from 2010-11 to 2021-22, Ɛ = error term.

The first model (1) studies the impact of export price of Indian jute products, domestic price of the jute products, the export price set by the competing country (Bangladesh) and the domestic consumption quantity of jute manufacturing products on the export earnings of the products. Here β1 measures the effect of export price, β2 measures the effect of domestic price, β3 measures the impact of the price of competing country (Bangladesh) and β4 measures the impact of domestic consumption quantity on the dependent variable.

$qty\_exp_{i,t} = \beta 0 + \beta 1\ p\_exp_{i,t} + \beta 2\ dom\_cons\_qty + \beta 3\ p\_comp\_contri,t + \beta 4\ qty\_comp\_contri,t + Ɛ$ .....(2)

Where,

qty_exp = Quantity of export, P_exp = price of export, P_dom = domestic price, P_comp_contr = export price of competing country, Qty_comp_contr = Quantity of export of competing country, the suffix i = different jute products category, the suffix t = years ranging from 2010-11 to 2021-22, Ɛ = error term.

The second model (2) studies how the volume of jute exports from India is affected by export price of the jute products, domestic consumption quantity of the jute products and the quantity exported by the competing country (Bangladesh). Here β1 measures the effect of export price, β2 measures the effect of domestic consumption quantity, β3 measures the effect of the price of competing country (Bangladesh) and β4 measures the effect of export quantity of competing country (Bangladesh) on the dependent variable.

The coefficients have been estimated using a fixed effect model, considering the time-invariant effect of price and quantity of different product categories on the export quantity and value of jute Packaging materials. Hausman test has been conducted. The result indicates the choice of fixed effect model to be justified in both the cases.

Result and Discussion

Val_exp	coefficient	t
p_exp	-0.0232708	-0.88
p_dom	-0.0148091	-2.17*
p_comp_cntr	2.83126	3.77*
Dom_cons_qty	0.928681	1.20
constant	39.16735	1.03

* significant at 95% confidence level.

The result indicates that domestic price as well as the price of competing country has a statistically significant effect on the export value of Indian Jute products. As India has a huge domestic demand, it has an extreme impact on the export proportions. The slightest drop in the domestic price influences the domestic consumption which in turn influences the export value. The mandatory packaging norms under the JPM Act 1987, direct the use of 100% jute packaging materials for the packaging of foodgrains and 20% for the packaging of sugar. The Government of India imposes this norm almost every year depending on the availability of the Production units. Though this is like a protective gesture of the government to give a minimum security to the industry from any subsequent losses but this is somehow affecting the export-generating capacity of the industry. As the main jute and jute goods exporting countries Bangladesh and India are responsible for exporting almost 80% of the world's jute goods, the prices of both countries have a significant impact on each other's export demand. If the export price of Bangladesh's jute goods increases the export quantity of Indian jute goods increases which in turn increases the export value of Indian jute goods.

Quantity of Export	Coefficient	t Value
Price of export	-0.0613778	-4.32*
Dom Cons Quantity	0.1202557	3.78*

Qty_comp_cntr	0.0120752	1.15
P_comp_cntr	3.720869	5.36*
constant	3.770922	0.30

*Significant at 95% confidence level

The result of the 2nd model suggests that the price of export, domestic consumption quantity and the price of competing country statistically significantly impacts the export quantity of Indian jute goods. The comparatively high export prices negatively impact the export quantity. It shows that the domestic consumption quantity has a statistically significant positive impact on the export quantity because the jute yarn is the main input for the production of jute bags and hessian. If the domestic consumption of jute yarn increases, the production of jute bags and hessian can also increase, leading to a rise in the export quantity of the overall jute goods industry. The result also shows that the export quantity of the competing country (Bangladesh) does not significantly impact the export quantity of India. It means that both the countries have competition in terms of price but not in terms of market share in the world market which means both India and Bangladesh have a positive market prospect in the world jute industry.

Conclusion:

The Indian Jute Industry is positioned to achieve a prosperous future by effectively capitalizing on emerging opportunities. Every Jute product that we have examined in this study has high market demand both internationally as well as domestically which the sector is struggling to meet. In this situation, it is essential to modernize the production procedure. Then only the industry can address the existing disparity between demand and supply. Adopting modern production technology will lower production costs and make Indian jute products more competitive in the global market. This would ultimately position the country favourably against its competitors. However, to bring about these transformative changes, the government needs to channel increased investment into research and development initiatives within the sector. Encouraging collaboration between private and public entities can be an effective strategy to foster competition within the sector and to incentivize greater investment. This approach can lead to the development of innovative solutions and the creation of more opportunities for growth and development within the industry.

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