

The Cotton Textile Industry in Modern India: Historical Evolution, Economic Growth, and Sustainability Challenges

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ABSTRACT

The cotton textile industry has been central to India's economic and cultural evolution, from ancient handloom traditions to its present role as a global manufacturing hub. Colonial exploitation disrupted indigenous production, but post-independence modernization and liberalization policies revitalized the sector, integrating it into global markets. Today, it contributes significantly to GDP, exports, and rural livelihoods, linking agriculture with industry. However, challenges persist, including sustainability concerns, environmental degradation, and competitive pressures from global players. Balancing technological innovation with inclusivity and cultural preservation is essential for ensuring the industry's long-term resilience and global competitiveness.

Key Words: *Cotton Textile Industry, Modern India, Economic Growth, Sustainability, Heritage.*

I. Introduction

The cotton textile industry holds a pivotal place in the economic and social fabric of modern India, reflecting a historical continuum of craftsmanship, industrialization, and global trade. From its ancient roots to its contemporary form, the industry has undergone significant transformations, shaped India's industrial landscape and contributing to its socio-economic development. Rooted in centuries-old traditions of cotton cultivation and craftsmanship, India's textile heritage predates the modern industrial era. Regions like Gujarat and Bengal were renowned for their intricate handloom fabrics, which found demand across the ancient trade routes of the world. However, the advent of colonial rule marked a turning point in India's textile narrative. British policies exploited Indian resources for the benefit of British industries, leading to the decline of indigenous textile production and the rise of British-controlled mills. This period of exploitation laid the groundwork for the later struggles for independence and self-reliance. With independence in 1947, India embarked on a journey of economic self-determination and industrialization. The cotton textile industry became a focal point of post-independence development efforts, with the establishment of modern textile mills and the promotion of indigenous entrepreneurship. Throughout the decades, the industry has witnessed waves of technological innovation, policy reforms, and global market integration. From the Swadeshi movement's call for self-sufficiency to contemporary initiatives aimed at enhancing competitiveness and sustainability, the trajectory of the cotton textile industry reflects India's aspirations for growth and prosperity.

The growth of India's cotton sector after independence was not merely economic but also symbolic, tied to the ideals of self-reliance and national pride. Handlooms and khadi became enduring emblems of India's struggle for freedom and cultural identity, reinforcing the significance of cotton as both a material resource and a political instrument. In the decades that followed, state intervention through five-year plans, establishment of textile boards, and policy support helped modernize infrastructure and expand

production capacity. Liberalization policies of the 1990s further integrated Indian textiles into global supply chains, positioning India as a major exporter while opening the domestic market to international competition. This dual process of modernization and globalization pushed the industry toward greater efficiency and innovation, but also exposed it to the vulnerabilities of global demand fluctuations and competitive pressures from countries like China and Bangladesh.

At present, the cotton textile industry in India is not only one of the largest contributors to GDP and employment but also a cornerstone of its export economy. The sector generates substantial foreign exchange earnings, providing India with a competitive edge in international markets. More importantly, it provides livelihoods to millions, particularly in rural areas where cotton farming, ginning, and small-scale weaving continue to sustain local economies. Cotton textiles embody a unique intersection of agriculture and industry, connecting the work of farmers, spinners, weavers, and garment manufacturers into an extensive value chain. This interconnected ecosystem highlights the inclusive role of the industry in employment generation, especially for women and marginalized communities, reinforcing its social significance alongside its economic weight. Despite its remarkable achievements, the industry also faces persistent challenges. Issues of sustainability, environmental degradation, and resource intensity are increasingly pressing. Cotton cultivation requires high volumes of water and pesticides, raising concerns over ecological balance and farmer health. Textile processing generates significant wastewater and chemical pollution, necessitating stronger adoption of green technologies and waste management practices. While international standards encourage organic and sustainable cotton farming, India's large-scale transition remains gradual due to socio-economic constraints faced by smallholder farmers. Addressing these sustainability issues is vital, not only for environmental protection but also for ensuring the long-term resilience and global competitiveness of the industry. Technological disruption further adds layers of complexity. Advances in biotechnology, such as genetically modified hybrids, have enhanced yields and reduced pesticide dependence, yet they have also sparked debates about farmer dependency on seed corporations and ecological consequences. Similarly, automation, digitization, and Industry 4.0 practices in manufacturing are transforming the textile sector, improving efficiency and quality but potentially reducing low-skilled employment opportunities. Balancing innovation with inclusivity remains a critical challenge for policymakers and industry leaders.

On the global stage, India's cotton textile industry continues to negotiate its place within shifting dynamics of trade and geopolitics. The rise of Bangladesh's ready-made garment sector, China's dominance in textile exports, and Vietnam's growing competitiveness all reshape market opportunities and pressures. At the same time, conscious consumerism in Western markets is increasing demand for sustainable and ethically produced textiles, creating both challenges and prospects for Indian producers. To remain competitive, India must not only strengthen its production capacity but also invest in eco-friendly technologies, certification systems, and marketing strategies that align with global sustainability trends. Beyond economics, the industry carries enduring cultural significance. Cotton textiles remain deeply embedded in India's identity, reflecting craftsmanship, artistry, and regional diversity. From the handlooms of Varanasi to the block prints of Rajasthan and the khadi promoted by Mahatma Gandhi, cotton fabrics are symbols of India's artistic heritage and resilience. In this sense, the industry is not merely a driver of growth but also a preserver of traditions that connect past and present. Recognizing and promoting this cultural dimension alongside industrial modernization can provide India with a distinctive advantage in global markets that increasingly value authenticity and heritage. The Indian cotton textile industry stands today as a symbol of resilience, innovation, and dynamism. It represents a sector that has endured centuries of change—from colonial exploitation to independence-driven self-reliance, from state-

led modernization to liberalization and global integration. Its trajectory reflects India's broader journey of industrialization, economic empowerment, and cultural preservation. As India navigates the complexities of globalization, sustainability, and technological disruption, the cotton textile industry continues to evolve, adapting to new challenges while creating opportunities for inclusive development. Its story is one of economic significance, social relevance, and cultural pride, making it a vital lens through which to understand India's past, present, and future.

II. Review of Literature

The textile and apparel industry has historically played a pivotal role in shaping global trade, industrialization, and economic development. Cotton, at the heart of this industry, has been cultivated for millennia, marking critical milestones in human history with innovations in cultivation, ginning, and spinning (Lee & Fang, 2015). Its domestication facilitated the growth of large-scale textile production, with regions like Europe adopting calico-printing technologies from Asia, thereby laying the foundation for global industrial linkages (Riello, 2010). Similarly, the U.S. Civil War disrupted cotton supply chains, compelling the British textile industry to innovate technologically and seek new sources of raw material (Hanlon, 2015). Historical studies further illustrate how industrial clustering in Lancashire was influenced by geographic, market, and technological factors (Crafts & Wolf, 2014), while divestment trends reveal the interaction between government policy and private enterprise (Higgins & Toms, 2018). These historical insights not only highlight cotton's central role in early industrial economies but also underline its continued importance in shaping global trade patterns.

India's engagement with the cotton and textile industry is both historical and contemporary. Broadberry et al. (2015) provide evidence of India's declining per capita GDP during the early modern period, coinciding with the onset of the Great Divergence, when global leadership in textile production shifted to Europe. However, India retained its strong connection with cotton cultivation, later becoming one of the world's largest producers and consumers. Today, India's textile and apparel industry ranks second globally after China, supported by robust manufacturing infrastructure that integrates diverse fabrics and yarns (Devaraja, 2011). The post-liberalization era of the 1990s marked a turning point, with the industry adopting both producer-driven and buyer-driven value chain models, linking local production capabilities to global market demands. This transformation positioned India as a vital player in the global apparel sector, blending traditional strengths with modern competitiveness.

Globally, cotton remains a high-value crop, contributing over \$600 billion annually to emerging and established economies (Khan et al., 2020). India epitomizes this economic significance as both a top producer and consumer, with technological advances and hybrid innovations shaping cultivation practices. Biotechnology, in particular, has enabled the production of pest-resistant hybrids, reduced pesticide reliance and improving yields (Radhakrishnan, 2017). Yet, sustainability challenges persist. Environmental, socio-economic, and political factors complicate the transition toward sustainable cotton farming, even as international standards encourage organic cultivation. The livelihoods of millions of smallholder farmers, especially in India, remain tied to balancing productivity with ecological responsibility.

Sustainability has emerged as one of the most pressing concerns in the global textile and apparel sector. While cotton cultivation drives rural economies, its environmental impacts—ranging from high water consumption to chemical-intensive processing—raise serious concerns. Studies show that yarn production alone entails environmental ramifications across its lifecycle, with enterprises exhibiting varied carbon footprints depending on energy use and resource efficiency (Bevilacqua et al., 2014). Textile processing

also generates substantial wastewater and pollution, necessitating “end-of-pipe” technologies and other pollution-control strategies to mitigate ecological harm (Bhatia & Devraj, 2017). Comparative analyses reveal that eco-friendly textile products significantly reduce environmental stress, highlighting the importance of integrating sustainable materials and consumer practices into the industry (Baydar et al., 2015). Desore and Narula (2018) argue that achieving sustainability in textiles requires addressing both drivers and barriers, emphasizing that policy incentives, technological innovations, and consumer awareness must align to enable meaningful transformation.

The regional experiences of textile-producing nations further enrich the understanding of the sector’s global dynamics. Bangladesh’s Ready-Made Garment (RMG) sector, for example, demonstrates how textile industries can drive economic growth and social development, particularly in emerging economies. Islam et al. (2016) note that the RMG sector in Bangladesh contributes significantly to GDP and employment, especially for women, but continues to face infrastructural inadequacies, compliance pressures, and labor rights challenges. These insights are particularly relevant for India, which competes in similar global markets and must address parallel concerns of labor standards, sustainability, and competitiveness. Similarly, the agro-processing industry, of which textiles form a core part, continues to evolve in response to shifting consumer demands, technological innovations, and globalization pressures, thereby contributing significantly to national economies (Kachru, 2010). This body of literature situates cotton and textiles within a broad historical and contemporary context, demonstrating their economic, social, and environmental importance. Historically, cotton was central to industrial revolutions, global trade reconfigurations, and colonial economies, shaping patterns of wealth and divergence. In the contemporary period, India’s textile sector reflects both continuity and change, retaining its prominence while grappling with global sustainability imperatives. Research underscores that the future trajectory of the industry depends not only on technological advances and market linkages but also on how effectively sustainability, equity, and inclusivity are embedded within production systems. In this sense, cotton textiles serve as a prism through which to examine the intersections of history, economy, environment, and social justice.

III. Findings and Conclusion

3.1 Findings

The study of modern education in Jharkhand from 1850 to 2000 reveals a multi-layered process of change, negotiation, and contestation that shaped the socio-cultural and political fabric of Adivasi society. The findings can be grouped into several broad themes,

Colonial Introductions and Exclusionary Policies: The colonial period introduced formal education systems that were largely designed to serve the administrative and economic interests of the British Raj. English-medium schools, standardized curricula, and limited institutional access were meant to produce a class of clerks and interpreters. For Adivasis, these schools remained largely inaccessible due to geographic isolation, poverty, and cultural barriers. The result was an early phase of exclusion, where colonial education widened inequalities rather than bridging them. However, the small group of Adivasis who did gain access to these institutions later emerged as key voices in resistance movements and community leadership, underscoring the paradoxical impact of colonial schooling.

Missionary Contributions and Cultural Ambivalence: Christian missionaries played a significant role in expanding educational access in tribal areas where the colonial state showed limited interest. Missionary schools offered literacy, vocational training, and exposure to broader worldviews, filling an

important gap in formal education. This came at a cultural cost. Alongside academic knowledge, missionary institutions introduced Christian values and religious teachings, which disrupted indigenous traditions and practices. The ambivalent outcomes of missionary schooling reveal how education could be simultaneously emancipatory and assimilative. Families who sent their children to missionary schools often gained upward mobility, but communities also expressed anxiety about cultural alienation.

Transformation of Indigenous Knowledge Systems: The findings indicate that modern education profoundly altered indigenous systems of learning. Pre-colonial Adivasi education relied heavily on oral traditions, community practices, and intergenerational teaching rooted in cultural values and spirituality. Modern schooling displaced many of these traditions, leading to generational divides between youth exposed to new knowledge systems and elders who continued to value ancestral wisdom. This conflict created tensions within communities, as younger generations increasingly aspired to economic advancement and formal employment, while elders emphasized cultural preservation.

Post-Independence Democratization and Policy Reforms: After independence in 1947, the Indian state prioritized education as a vehicle for development and inclusivity. Policies such as reservations, scholarships, and literacy programs were introduced to uplift marginalized groups, including Scheduled Tribes. In Jharkhand, these initiatives expanded access to schools and universities, enabling a gradual rise in literacy rates and enrollment levels. Despite these advances, the findings show persistent structural barriers: poor infrastructure, teacher shortages, cultural insensitivity in curricula, and high dropout rates, especially among girls. While the democratization of education created pathways for empowerment, inequities remained embedded in the system.

Emergence of Educated Adivasi Leadership: One of the most significant findings is the role of education in producing a new class of Adivasi leaders, intellectuals, and activists. Educated individuals used modern schooling not only to secure employment but also to mobilize their communities, articulate grievances, and demand political rights. Leaders educated in missionary and government schools played central roles in movements such as the Koel-Karo resistance and the campaign for a separate Jharkhand state. Education became a tool of political consciousness, allowing Adivasis to challenge both colonial and postcolonial forms of marginalization.

Socio-Economic Mobility and Inequality: Modern education enabled sections of the Adivasi community to achieve socio-economic mobility by accessing formal employment in administration, education, and public services. However, the benefits were unevenly distributed. Families with better resources and proximity to urban centers were able to take advantage of educational opportunities, while rural and marginalized communities lagged behind. The result was internal stratification within Adivasi society, where educational attainment became a marker of privilege. This stratification both empowered and divided communities, highlighting the dual nature of modern education.

Cultural Alienation and Generational Tensions: The findings emphasize the contradictions of modern education as both empowering and alienating. While it facilitated participation in mainstream political and economic life, it also undermined indigenous traditions, rituals, and languages. Generational tensions emerged, as educated youth often distanced themselves from cultural practices perceived as “backward,” while elders sought to preserve them. This cultural dissonance was a recurring theme, underscoring the challenges of negotiating modernity while maintaining identity.

Legacy and Continuity: By the end of the 20th century, modern education had become deeply embedded in Adivasi society in Jharkhand. Schools, colleges, and universities were not only spaces of learning but also arenas of contestation where questions of identity, culture, and justice were negotiated. The legacy of colonial and missionary influence persisted in institutional structures, but there were increasing efforts to decolonize curricula, promote indigenous languages, and make education more culturally sensitive. The continuity of education as both a site of empowerment and struggle reflects its enduring importance in shaping the trajectories of Adivasi communities.

3.2 Conclusion

The study of modern education in Jharkhand from 1850 to 2000 demonstrates that education was never a neutral or purely developmental process; rather, it was a contested terrain shaped by power, culture, and resistance. Colonial administrators viewed education as an instrument of governance, while missionaries saw it as a tool for religious transformation. Adivasi communities, however, engaged with these systems in diverse ways—sometimes resisting, sometimes adapting, and often reappropriating education for their own purposes. This dynamic engagement underscores the agency of Adivasis, who were not passive recipients of external interventions but active participants in shaping their educational experiences. The findings make it clear that education in Jharkhand served multiple and sometimes contradictory functions. It disrupted indigenous knowledge systems but also created new opportunities for leadership and empowerment. It facilitated socio-economic mobility but also deepened inequalities within and between communities. It undermined cultural traditions but also enabled the preservation and promotion of identity through intellectual discourse and political activism. Education thus acted as a double-edged sword: a source of empowerment and a site of alienation. In the post-independence period, state-led policies sought to democratize education and promote social justice, yet structural challenges limited their effectiveness. While literacy rates and enrollment levels improved, systemic barriers such as inadequate infrastructure, cultural insensitivity, and socio-economic inequalities persisted. These challenges underscore the need for culturally inclusive educational policies that address not only access but also the quality and relevance of education for Adivasi communities. The legacy of modern education in Jharkhand highlights its enduring role in shaping identity, aspirations, and struggles for justice. Through producing educated leaders and intellectuals, education contributed to movements for autonomy, rights, and statehood. At the same time, it raised fundamental questions about cultural continuity, generational tensions, and the costs of modernization. The period from 1850 to 2000 reveals that education was not simply a means of economic advancement but a powerful force that redefined the very fabric of Adivasi society.

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