

2. Literature Review

2.1 Current Situation of Indonesia Textile Industry Export

Indonesia's textile export sector has experienced significant declines in recent years, reflecting broader challenges in global value chain integration. Despite the country's abundant resources and export potential, research shows Indonesia has struggled to transition from raw material exports to higher value-added textile products (Bustaman et al., 2022). While East Asian competitors dominate global value chain activities, Indonesia's textile industry faces severe structural challenges including factory closures and mass layoffs. The sector has been further impacted by reduced export demand due to geopolitical crises in Eastern Europe (Purwanto, 2024), compounding existing competitive weaknesses in international markets.

The textile industry remains critically important for Indonesia's employment landscape despite its deteriorating export performance. Ministry of Industry data shows the sector employed 3.6 million workers in 2018, representing 2.9% of the national workforce and ranking as the second-largest employer after food processing. However, textile exports have contracted in six of the last eight quarters (Rezki et al., 2025), reflecting declining competitiveness that threatens the sector's vital role in job creation and industrial output. This downturn underscores the urgent need for policy interventions to support the industry.

Multiple systemic factors contribute to the textile sector's declining competitiveness, with policy shortcomings and productivity gaps being particularly consequential. Rezki et al. (2025) identify unsupportive industrial policies and low productivity as key drivers of reduced capacity utilization, which fell to just 69.92% in Q2 2024 - the lowest level in 18 years. These challenges have led to widespread factory closures and layoffs, demonstrating how structural deficiencies in policy frameworks and operational efficiency can undermine an entire industry's viability. The sector's struggles highlight the complex relationship between domestic capabilities, foreign competition, and evolving global market conditions that determine export success.

2.2 Research on the Impact of FDI on Textile Export

Foreign Direct Investment (FDI) plays a pivotal role in shaping the economic landscape of developing countries such as Indonesia. According to the United Nations Conference on Trade and Development (UNCTAD), FDI is defined as an investment reflecting a lasting interest and control by a foreign direct investor, resident in one economy, in an enterprise resident in another economy (foreign

affiliate). In Indonesia, research spanning 30 years from 1992 to 2022 indicates that the country has maintained relatively stable FDI inflows, averaging approximately USD 9.78 billion annually (Abdika et al., 2024). This long-term consistency highlights both Indonesia's economic resilience and its continued appeal to foreign investors. Although the country experienced occasional downturns due to global economic turbulence or domestic political developments, Indonesia remains a strategic and competitive destination for international capital. These periodic fluctuations contribute to a dynamic investment climate, yet they do not undermine the country's enduring attractiveness to foreign investors.

The impact of FDI on export competitiveness has been widely examined in theoretical and empirical literature. A central focus in this research is the role of Multinational Enterprises (MNEs), which are often the primary drivers of FDI and exert considerable influence on host economies. FDI is generally expected to enhance domestic economic outcomes by promoting technology transfer, managerial improvements, and integration into global supply chains. However, foreign direct investment (FDI) can also have downsides. When multinational companies (MNEs) invest in industries focused on exports, they can increase competition. This is called the competition effect, and it can hurt local businesses that don't have enough money, technology, or access to markets to keep up (Kutan & Vukšić, 2007). In such cases, weaker local firms may be driven out of the market. If MNE affiliates do not fully compensate for the lost exports of these displaced businesses, the net result may be a decline in the nation's overall export competitiveness. This theoretical concern is particularly relevant for developing countries where domestic industrial capacity is still maturing.

Empirical studies examining the relationship between FDI and export competitiveness offer mixed results, especially within the textile and apparel sectors. For instance, Septiana and Wahyuningsih (2020) analyzed the competitiveness of Indonesia's textile and textile product exports within ASEAN and found that FDI positively influences the sector's competitive performance. However, contrasting findings emerge from research in other developing economies. A study by Liu (2024), for example, explores the impact of horizontal FDI on the export quality of domestic firms in China and finds that it can have a significant adverse effect. The influx of FDI increases market competition, compelling local firms to adjust their product strategies, often by diversifying at the expense of quality. While the quantity of exports may rise, the average quality tends to stagnate or decline, undermining long-term competitiveness—particularly in sectors where product quality is crucial for global market success. These findings underscore the importance of host country conditions: without adequate absorptive

capacity, supportive policy frameworks, and institutional readiness, the presence of FDI may hinder rather than help the development of competitive domestic exporters.

2.3 Research on the Methods of Export Competitiveness

Revealed Comparative Advantage (RCA) is a fundamental tool for assessing a country's relative export competitiveness in international trade. As highlighted by Bernardini, Papalia et al. (2014), cited in Suparmono et al. (2022), competitiveness is a multidimensional concept that extends beyond trade performance to encompass a country's ability to meet foreign market demands while contributing to long-term national welfare. RCA serves as a valuable metric in this context because it is grounded in actual trade flow data, offering a tangible measure of export strength. In his study on Indonesian export commodities, Suparmono argues that RCA is more reliable than other methodologies—such as Export Product Dynamics (EPD), Relative Export Advantage (RXA), Constant Market Share (CMS), and Trade Intensity Index (TII)—when evaluating international product competitiveness (Suparmono et al., 2022). This assertion supports the preference for RCA in empirical trade studies focused on export competitiveness.

The theoretical foundation of RCA lies in Ricardian trade theory, which links international trade patterns to differences in productivity across countries. According to UNCTAD, while these productivity disparities are often difficult to observe directly, RCA provides a practical method for identifying comparative advantages using trade data (Stellian & Danna-Buitrago, 2019). When a country records an RCA value greater than 1 for a specific product, it indicates that the country has a relative strength in exporting that good compared to the global average. This reflects a competitive edge and signals strategic positioning in international markets. However, UNCTAD also cautions that RCA does not capture the effects of trade policy interventions, such as tariffs or subsidies, which may distort true competitiveness (Stellian & Danna-Buitrago, 2019). Despite these limitations, RCA continues to be a widely recognized and effective indicator for identifying priority export sectors in national trade analysis.

2.4 Research on Textile Export and Carbon Emission Reduction

The relationship between economic activities and carbon emissions in Indonesia has been the subject of growing academic interest, particularly in the context of agriculture, manufacturing, and urbanization. A study by Eko Prastiyo and Hardyastuti (2020) examined how these sectors contribute to Indonesia's carbon emission trends. Their empirical findings indicate that urbanization,

manufacturing value added, and gross domestic product (GDP) are key drivers of rising carbon emissions. Specifically, emissions from both the manufacturing and agricultural sectors were positively influenced by economic growth and the value added to agriculture. Furthermore, causality analysis revealed bidirectional relationships between carbon emissions and manufacturing value added, agricultural value added, and GDP, suggesting a dynamic feedback loop between emissions and economic performance. Complementary research published in the *IOP Conference Series: Earth and Environmental Science* analyzed the interplay between Indonesia's economic growth, exports, and CO₂ emissions. The study concluded that while exports are a short-term driver of economic development, excessive carbon emissions eventually hinder long-term growth. These findings underscore the need for sustainable export strategies that minimize environmental degradation while maintaining economic momentum (Yusuf et al., 2021).

The environmental implications of Indonesia's textile industry have also attracted scholarly attention, particularly concerning its contribution to carbon dioxide (CO₂) emissions. Haseeb (2020) conducted a study employing a quantile regression model to investigate the impact of textile manufacturing output on CO₂ emissions. The research confirmed a strong and positive correlation between textile production and emissions, especially under typical economic conditions. Interestingly, the results also highlighted nonlinear effects, showing that under specific scenarios—such as when emissions are already elevated and textile output is low—the relationship may reverse. This suggests that the marginal effect of textile production varies depending on the broader environmental context. These nuanced findings emphasize the critical need for environmentally conscious industrial policies within Indonesia's textile sector to address its complex carbon footprint. Building on this research, the present analysis aims to explore export competitiveness by considering the influence of foreign direct investment (FDI), CO₂ emissions, and two central economic variables, with the objective of understanding how these elements interact to shape Indonesia's position in global textile trade.