

## Assessing the Relationship Between Firm Resources and Factory Certifications: A Quantitative Content Analysis of the Bangladeshi Fashion Industry

Sudipta Das, Debanjan Das Ph.D., West Virginia University, USA

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The fashion industry is essential to the Bangladesh economy and employs around 4.5 million people. Bangladesh is the second largest clothing exporter in the world. In 2021, this sector had an export value of \$35 billion, accounting for 81% of total national exports while contributing around 12% to the country's GDP (BGMEA, 2021). The U.S. was Bangladesh's largest apparel export partner, accounting for around 21.50% of total exports, followed by Germany (16.8%), the U.K. (10.6%), Spain (7.1%), and France (5.6%) in 2021 (Asia Garment Hub, 2023). The demand for relatively little capital, modest investments, and the availability of inexpensive labor have mostly benefited Bangladesh's fashion industry. However, the industry has come under increasing scrutiny in recent years due to its impact on the environment and social issues such as hazardous chemicals, a lack of adequate working conditions, fair wages, and worker safety (Monamy & Das, 2022).

The Bangladesh fashion industry is synonymous with labor unrest, building collapses, and fire accidents (Ayatullah et al., 2017). These incidents have brought attention to the need for implementing certification programs in the Bangladeshi RMG industry to deal with these social and environmental issues. The certification programs provide a framework for ensuring safer working conditions, fair wages, and better employee protection, while promoting sustainability and ethical practices. Some of the most common certificates obtained by Bangladesh fashion businesses were the International Organization for Standardization (ISO), Fair Trade, Global Organic Textile Standard (GOTS), B-Corp, Better Cotton Initiative (BCI), and Social Accountability International (SA8000) (Mottaleb & Sonobe, 2011). Several studies showed that certifications had a significant impact on the performance of manufacturing firms. For example, Wen & Lee (2020) found that Chinese firms experienced significant improvements in their financial performance and productivity after obtaining environmental labeling certifications. Similarly, Ullah et al., (2014) found that ISO accreditation was positively associated with the size and age of firms in Latin America and the Caribbean. Additionally, Gallego & Gutiérrez Ramírez, (2021) found that implementing ISO 9001 certification increased innovation, labor productivity, and sales for manufacturing firms in Colombia.

The resource-based theory of the firm defines competitive advantage as a value creating strategy being implemented by a firm while other potential competitors do not or cannot (Barney, 1991) and form the theoretical framework. Prior research on Bangladesh apparel export firms revealed that experience in exporting, ability to provide high quality, physical resources such as infrastructure, location, availability of skillful and experienced employees, and ability to provide affordable and competitive prices for their products are key resources for their competitive

advantages (Swazan & Das, 2021). Previous research on the Bangladesh fashion industry has not investigated the certifications and their relationship with the firm resources. To fill this gap, the study analyzes the firm resources of the Bangladesh fashion industry and evaluates the relationship of certifications with the firm resources. A content analysis was used to analyze the firm resources reported by the apparel manufacturers and exporters of Bangladesh. Sample firms in this study were selected from the directory of apparel manufacturers and exporters published by Bangladesh Garment Manufacturer and Exporter Association (BGMEA) in 2022. A total of 5,222 garment manufacturing firms registered under the BGMEA were analyzed, and only 723 firms were found to have proper websites. From this pool, 358 firms were randomly selected. The text data was coded and interpreted for reoccurring themes, according to the Barney (1991) firm resource framework.

The results of the content analysis revealed 24 unique vital resources. The unique firm resources were found to be (1) location [342 out of 358 or 95.5%], (2) quality [304 out of 358 or 84.9%], (3) experience [276 out of 358 or 77.1%], (4) production equipment [232 out of 358 or 64.8%], (5) size [225 out of 358 or 62.8%], (6) number of clients [218 out of 358 or 60.9%], (7) management [211 out of 358 or 58.9%], (8) no. of certificates [196 out of 358 or 54.7%], (9) product breath [195 out of 358 or 54.5%], (10) incentives [177 out of 358 or 49.4%], (11) on time delivery [177 out of 358 or 49.4%], (12) infrastructure [175 out of 358 or 48.9%], (13) customer satisfaction [132 out of 358 or 36.9%], (14) competitive price [11 out of 358 or 31%], (15) finance [100 out of 358 or 27.9%], (16) skilled employees [99 out of 358 or 27.7%], (17) designers [86 out of 358 or 24%], (18) employee training percentage [75 out of 358 or 20.9%], (19) relationship [72 out of 358 or 20.1%], (20) fashion trend [71 out of 358 or 19.8%], (21) reputation [64 out of 358 or 17.9%], (22) design [84 out of 358 or 23.5%], (23) domestic operation [10 out of 358 or 2.8%], (24) awards [37 out of 358 or 10.3%].

A Pearson correlation test was undertaken to measure the correlation between the number of certifications and the firm resources. The study revealed that the number of certificates had a significant, small positive correlation with the number of clients  $r(354) = .296, p < .001$ ; size  $r(354) = .280, p < .001$ ; product breath  $r(354) = .276, p < .001$ ; infrastructure  $r(354) = .242, p < .001$ ; designers  $r(354) = .234, p < .001$ ; management  $r(354) = .187, p < .001$ ; production equipment  $r(354) = .184, p < .001$ ; incentives  $r(354) = .178, p < .001$ ; quality  $r(354) = .177, p < .001$ ; finance  $r(354) = .140, p < .001$ ; design  $r(354) = .139, p < .001$ ; experience  $r(354) = .138, p < .01$ ; skilled employees  $r(354) = .116, p = .03$ .

A chi-square test of independence was performed to examine the relationship between no. of certifications and 23 firm resources. There was a significant association with medium effect size found between the number of certificates and product breath [ $\chi^2(44, n = 358) = 77.696, p = .001$ ], infrastructure [ $\chi^2(22, n = 358) = 65.697, p < .001$ ], size [ $\chi^2(22, n = 358) = 65.550, p < .001$ ], incentives [ $\chi^2(22, n = 358) = 52.399, p < .001$ ], designers [ $\chi^2(22, n = 358) = 52.045, p < .001$ ],

production equipment [ $\chi^2(22, n = 358) = 50.412, p < .001$ ], design [ $\chi^2(22, n = 358) = 38.706, p = .015$ ], quality [ $\chi^2(22, n = 358) = 36.278, p = .028$ ], experience [ $\chi^2(22, n = 358) = 35.611, p < .033$ ], number of awards [ $\chi^2(308, n = 358) = 1192.018, p < .001$ ]. A significant association with a large effect size has been noticed between the number of clients [ $\chi^2(770, n = 358) = 1995.791, p < .001$ ].

The results showed that certifications are a useful promotional tool for Bangladeshi firms to sustain their firm resources and competitive advantages. This research will give an overview of the apparel firm resources in Bangladesh and the role certifications play. The study provides a foundation for future research to explore the potential causality underlying the observed associations between certifications and firm resources and investigate the possible reasons for not having associations with other resources.

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