How Has COVID-19 Affected Apparel Exports from China, Vietnam, and Bangladesh?

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Background: Since its breakout in early 2020, COVID-19 has been the single biggest challenge facing the apparel industry, resulting in significant order cancellations, factory shutdowns, and supply chain disruptions (ILO, 2020a). This study aims to explore the export performance of the world's three largest apparel exporting countries, namely China, Vietnam, and Bangladesh, amid the pandemic (UNComtrade, 2021). Unlike the existing studies, we used the monthly trade statistics in 2020 to directly evaluate the pandemic's trade impact. The study's findings will fulfill a critical research gap and create new knowledge about the apparel-specific sectoral impact of COVID-19 from suppliers' perspectives.

Literature review: A review of the existing literature and trade theories suggests several factors may affect a country's apparel exports during COVID-19. **First**, government lockdown measures, which often require garment factories to cease production for an extended period, could hurt apparel exports (ILO, 2020b) (H1). **Second**, as many developing apparel-exporting countries cannot make textile raw material locally, the access to imported textile inputs (such as yarns and fabrics) should support a country's apparel exports during the pandemic (Lopez-Acevedo & Robertson, 2012) (H2). **Third,** the increased unemployment rate and economic hardship caused by COVID-19 tightened consumers' budgets and made fashion brands and retailers care even more about their sourcing costs (Zwanka & Buff, 2021). Thus, a country's price competitiveness could particularly benefit its apparel exports amid the pandemic (H3). **Fourth,** COVID-19 has resulted in a shift in the types of clothing most in-demand by consumers (Mckinsey & Company, 2021; OTEXA, 2021). This suggests that making and exporting a diverse group of apparel products could benefit a country's total clothing exports during COVID-19 (H4). **Additionally**, as countries worldwide recover from COVID-19 at a different pace (World Bank, 2021), the diversity in the apparel export market could create more export opportunities for a country (H5).

Methods and data: We used the following empirical model to test the proposed hypotheses:

$$Export_{it} = \beta_{1i} Lockdown_{it} + \beta_{2i} Textile_{it} + \beta_{3i} Price_{it} + \beta_{4i} Product_{it} + \beta_{5i} Market_{it} + c_i + \varepsilon_{it} \quad (1)$$

Where: $Export_{it}$ refers to the value of country i's apparel exports[1] in month t (sesaonally adjusted). $Lockdown_{it}$ denotes the state of garment factory lockdowns in month t (2=fully lockdown; 1=partial lockdown; 0=fully open) (ILO, 2020b). $Textile_{it}$ denotes the country i's value

[1] "Apparel" in this study cover HS Chapters 61-62 (UNComtrade, 20201).

of textile imports[2] in month t (seasonally adjusted). $Price_{it}$ refers to country i's average price of apparel exports in month t. $Product_{it}$ refers to country i's Herfindahl-Hirschmann product concentration index for apparel[3] in month t (Gnangnon, 2019). $Market_{it}$ refers to country i's Herfindahl-Hirschmann export market concentration index for apparel in month t (Mejía, 2011, p.82-85). c_i is the constant and ε_{it} is the error term. Trade data and factory lockdown information for the study came from UNComtrade (2021) and ILO (2020b), the most authentic sources of its kind. We used China, Vietnam, and Bangladesh's monthly export activities from January 2020 to November 2020 (the latest data available) for the analysis. Because the dataset includes both time series and cross-sectional data, we used the panel data modeling techniques and the generalized least square method to address potential serial correlation and cross-sectional heteroscedasticity issues (Wooldridge, 2010, p.173-176).

Results and discussions: Based on the result of the likelihood ratio test *($p=0.01<0.05$)*, we selected the fixed effects (FE) model to estimate Equation 1 (Wooldridge, 2010, p.285-287). The result of the F-test suggests the FE model is statistically significant at the 99% confidence level ($p<0.01$). The value of R^2 exceeds 0.81, indicating an overall high goodness-of-fit of the panel regression. Specifically: **First,** the result shows that when holding other factors constant, government lockdown measures (*Lockdown*) could cost a country around $1.4 billion fewer apparel exports per month during the pandemic ($p<0.01$) (Support H1). **Second**, when holding other factors constant, continuous access to textile raw material (*Textile*), price competitiveness (*Price*), and having a more diverse export market (*Market*) strongly support a country's apparel exports amid COVID-19 ($p<0.01$) (Support H2, H3, and H5). Notably, the price impact on China's apparel exports was far more significant than Vietnam and Bangladesh. **Third**, a more diverse export product structure (*Product*) benefited Vietnam's apparel exports ($p<0.01$), but not so much for China and Bangladesh ($p>0.05$) (Partially support H4). **Additionally,** regarding the FE model individual effect, $c_{i=China}$ is higher than $c_{i=Vietnam}$ and $c_{i=Bangladesh}$ ($p<0.01$), suggesting that China remained a larger-scale apparel exporter than Vietnam and Bangladesh despite COVID-19 and the turbulent business environment in 2020.

Implications and future research agendas: The study's findings enhance our understanding of the apparel-specific trade impact of COVID-19 and have several important implications. **First,** the results suggest that the significant challenges facing apparel-exporting countries amid the pandemic go far beyond the *demand side*. Instead, dealing with *supply-side* disruptions like government lockdown measures and access to textile raw material are equally critical for apparel exporters' survival. **Second**, as the findings suggest, controlling the virus and preventing future

[2] "Textile" in this study covers HS Chapters 51-55 and 60. We did not include HS Chapters 56-59 because they are typically for non-apparel usage (UNComtrade, 2021).
[3] The index is calculated at the 6-digit HS code level, covering HS Chapters 61 and 62.

government lockdowns will be particularly crucial to the economic well-being of apparel-exporting countries struggling hard with the pandemic. **Third,** the results reveal country-specific apparel export strategies in response to COVID-19. For example, while China leveraged the size effect and cost competitiveness, Vietnam prioritized broader product offers. Meanwhile, we can continue to explore the medium to the long-term implications of these strategies for the pattern of world apparel trade, especially as economies worldwide start to recover from COVID-19.

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