

# **RESEARCH REPORT**

## **ANALYSIS OF EXPORT ECONOMY OF BANGLADESH**

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# **BANGLADESH'S EXPORTS: ANALYSIS OF TRENDS AND AFFECTING FACTORS**

## **INTRODUCTION**

Exports play an important role in the growth of countries, especially emerging countries that lack infrastructure and are impacted by dynamic phenomena like disasters, political upheavals, and global developments. Trade is crucial for Bangladesh's economic success, poverty alleviation, and overall prosperity. In the past few decades, Bangladesh has made significant progress in its trading sector, while concurrently facing challenges such as natural calamities like floods, the COVID-19 pandemic, and political upheavals.

## **MOTIVATION**

This research aims to provide a comprehensive overview of Bangladesh's exports to European, Asian, African, and American countries. Additionally, this study emphasizes the key factors that have played a significant role in the country's exports. By examining influential aspects from 1995 to 2021, we will gain a better understanding of the determinant variables. This understanding will assist us in policymaking, investment, business decisions, and mitigating potential challenges in the future. The data for this paper was obtained from the OEC website and analyzed using Python software.

## **RESEARCH QUESTIONS**

1. What are the main exported items from Bangladesh between 1995 and 2021?
2. Who are the primary importers of Bangladesh's trade?
3. To what extent do natural disasters impact Bangladesh's trade?
4. How do political changes, both domestically and internationally, influence Bangladesh's export sector?

## **LITERATURE REVIEW**

There have been numerous studies conducted regarding Bangladesh's trade. However, the majority of them focus on specific items or compare specific countries, such as: (Hasan, et al., 2016) studied the Role of Textile and Clothing Industries in the Growth and Development of Trade & Business Strategies of Bangladesh in the Global Economy. For mentioned research data was gathered from primary and secondary sources. The major source of data is gathered mostly through direct talks with officials of textile firms. Secondary sources include BKMEA, BGMEA, Bangladesh Bank, Export Promotion Bureau, and BTMC, as well as internet surfing and annual reports of organisations. Additionally, published resources such as books and articles are used. The obtained data is analysed using various statistical methods. Time series analysis is used to examine the trend of exports and its contribution to GDP. Simple regression analysis is used to estimate the relevance of RMG export and total export, as well as profit and commission.

It has been found that the ready-made garments (RMG) industry is the leading contributor to both gross and net export earnings in Bangladesh. It accounts for over 76% of the national export earnings, surpassing other items. This significant contribution is attributed to the growth of the backward linkage industry, which has facilitated higher value addition and increased net retention rates. Moreover, the relaxation of Rules of Origin (RoO) has further boosted export growth.

Islam, Chowdhury, Rahman, & Zayed (2021) analysed the impact of the COVID-19 pandemic on major economic indicators of Bangladesh. This is an explanatory and descriptive paper based on data from different secondary sources. The COVID-19 pandemic has severely impacted the

Bangladesh economy, leading to a projected decline in GDP growth. Remittance inflows, export earnings, industrial production, and service sectors have been significantly affected. The poverty rate is expected to rise, and there has been a substantial decrease in readymade garments exports and remittances.

Hussain & Haqu, (2021) studied the relationship between foreign direct investments, trade, and the growth rate of per capita GDP for Bangladesh with the help of annual time series data from 1973 to 2014. According to the Vector Error Correction Model (VECM) research, these variables have a long-term association. They performed a few post-estimation diagnostic tests to ensure the validity of the VECM model and discovered that the regression residuals had a normal distribution and no auto-correlation. It has been found that trade and foreign investment have a considerable influence on GDP per capita growth rates. Because FDI and trade are two major components of Bangladesh's economic growth, it is critical to design policies that support growth while lowering obstacles to capital flows.

Mohammad Mafizur (2008) has studied The Foreign Trade of Bangladesh: Its Composition, Performance, Trend, and Policy. Secondary data has been analysed as a research methodology. Bangladesh's export sector has outperformed the world and SAARC countries, but the country faces a trade deficit and dependence on imported inputs for the garment industry. Diversification and quality improvements are needed, along with exploring new markets and investing in domestic yarn and fabric manufacturing. Improving trade balance requires infrastructure development, trade-related services, macroeconomic policies, and cooperation between the government and businesses. To address trade imbalances with SAARC countries, measures like currency devaluation and reducing barriers to exports are important. Establishing a customs union in the SAARC region could help overcome trade-related challenges.

Roy & Rayhan (2011) has Studied the Trade Flows of Bangladesh through a Gravity Model Approach. Bangladesh's trade flows are significantly determined by the size of the economy, openness of the economy and exchange rate, whereas the random effect model and cross-sectional effects do not show any significant impact of trade impediment factor in Bangladesh trade.

Rahman & Arjuman Ara (2010) has studied Bangladesh's trade potential through a dynamic gravity approach. The purpose of this paper is to examine the determining factors of Bangladesh's trade and assess whether the gravity model accurately explains its trade patterns. Additionally, the study aims to estimate Bangladesh's global trade potential using an augmented gravity model. The research utilizes panel data and a dynamic gravity model to estimate Bangladesh's trade potential with its major trading partners. The findings indicate that a significant portion of Bangladesh's trade potential remains untapped. The results suggest that Bangladesh tends to engage in more trade with larger economies in general and with developing economies for imports specifically. The study highlights that the increasing transaction costs in trade serve as a significant barrier, leading to the under realization of Bangladesh's trade potential.

## **RESEARCH METHODOLOGY**

The research methodology section initiates an in-depth investigation into the intricate analysis of Bangladesh's export trends and the factors shaping them. Starting with a comprehensive approach to gathering data from the OEC website, this methodology aims to examine Bangladesh's export patterns spanning the period from 1995 to 2021. Subsequent stages involve rigorous data cleaning, comprehensive analysis techniques, and detailed visualization methods to uncover crucial insights into key exported items, primary trade partners, the impact of natural disasters, and political dynamics on the nation's export industry. This methodical approach establishes a solid framework for thorough scrutiny, laying the groundwork to address pertinent research inquiries adeptly.

## DATA COLLECTION

### (a) Identification of Sources

The data used for this study originates from the Observatory of Economic Complexity (OEC) website, encompassing details on Bangladesh's export statistics, comprising items exported, trade partners, and historical data. The data of the Gross Domestic Product (GDP) is collected from the website of International Monetary Fund (IMF).

### (b) Description of Data

The data was retrieved in various formats such as CSV or JSON, containing essential variables like exported items, trade partners, trade volume, etc., acquired through the official channels provided by the OEC.

### (c) Methodology and Reliability of Data Collection

An evaluation was performed to assess the reliability of the data sourced from OEC, considering its collection methods, accuracy, and potential biases.

## DATA PREPARATION

### (a) Data Conversion and Organization

In the data preparation phase, emphasis was placed on converting data types as necessary and structuring datasets in an organized format suitable for subsequent analysis.

### (b) Selection of Variables and Categories

Relevant variables pertinent to the research questions were selected, such as exported items, trade partners, trade volumes, and temporal data.

### (c) Identification and Treatment of Outliers

Rigorous checks were conducted to detect and rectify any outliers or errors present in the collected data to ensure its integrity.

### (d) Handling Missing Data

Strategies were implemented to address missing data, which involved methods such as imputation or exclusion, and a thorough assessment was made regarding its potential impact on subsequent analysis.

## DATA ANALYSIS

### (a) Exploratory Data Analysis (EDA)

Various EDA techniques, including descriptive statistics and trend analysis, were employed to address the research inquiries comprehensively.

### (b) Analysis of Major Exported Items

The study focused on analyzing the frequency and temporal trends of significant exported items from Bangladesh spanning the years 1995 to 2021.

### (c) Identification of Primary Importers

The research quantified and identified the main countries importing goods from Bangladesh.

### (d) Assessment of Natural Disasters' Impact

A quantitative analysis was conducted to ascertain and evaluate the influence of natural disasters on trade patterns and volumes.

### (e) Evaluation of Political Influence

The study delved into assessing the correlation between domestic and international political changes and their influence on Bangladesh's export performance.

DATA VISUALIZATION

(a) Visual Representation

Various visualization techniques, such as time-series plots and bar charts, were generated to visually represent trends, trade relationships, impacts of disasters, and political influences.

(b) Emphasis on Clarity

The visual representations were meticulously labelled to ensure clarity, with specific emphasis on highlighting significant data points related to natural disasters and political events.

(c) Interactive World Map

The most interesting and eye-catching visualization was that an interactive world map was designed by integration of statistical data into a spatio-temporal representation format. While navigating through the map all the date for the examined indicators were on the displays with the movement of the curser from one country to the other.

RESULTS

(a) Total trade value over the years

The total trade value over the years witnessed a significant evolution. Beginning with a modest value of US\$ 5 million per annum in 1995, the country’s exports displayed a consistent increase, surpassing US\$ 50 million by the year 2021. Figure 1 illustrates three notable dips in the overall trade value. The first decline occurred in 1999, triggered by the devastating floods resulting from torrential rainfall during that year's monsoon season. These floods severely impacted the primary cotton and jute production farmlands, leading to a shortage of raw materials that adversely affected the country’s exports. The most substantial decline was recorded in 2020, mainly attributed to the impact of Covid-19. Since then, the country’s exports have been on an upward trajectory, reaching an All-Time High (ATH) and continuing to grow.

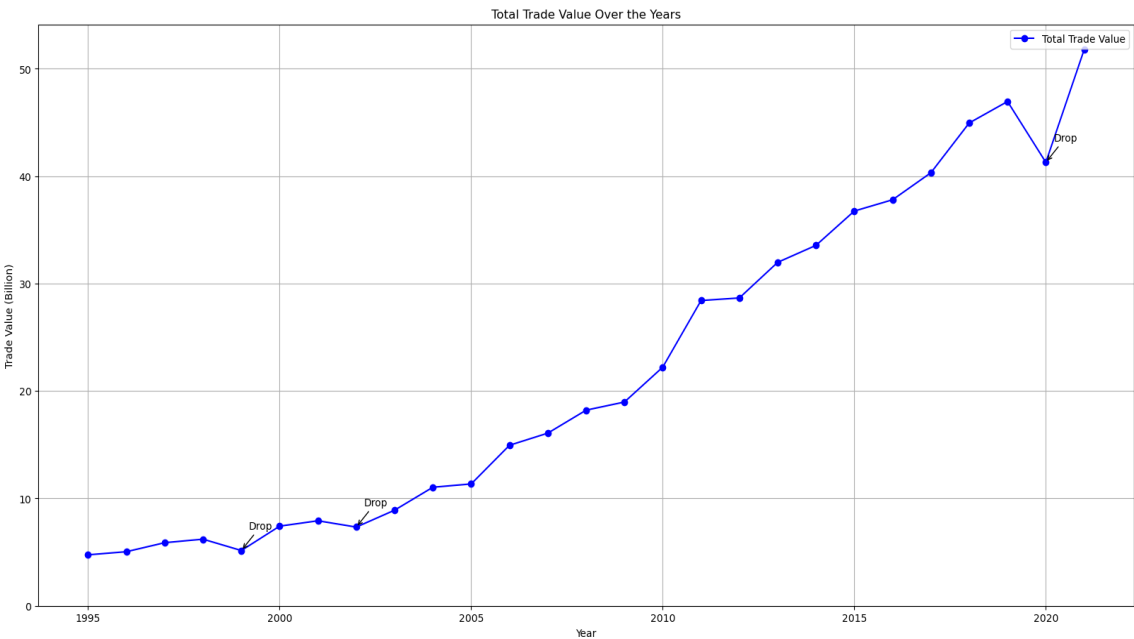
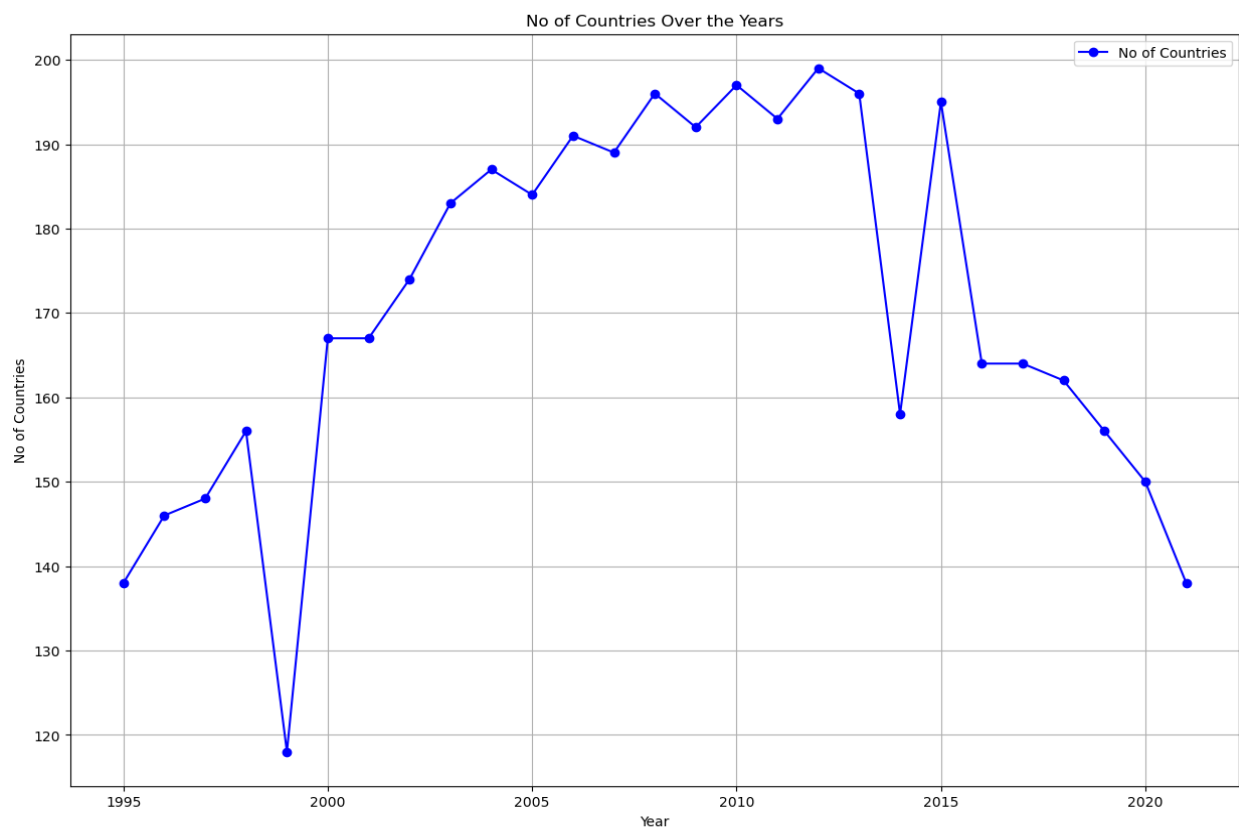


Figure 1: Total trade value over the years

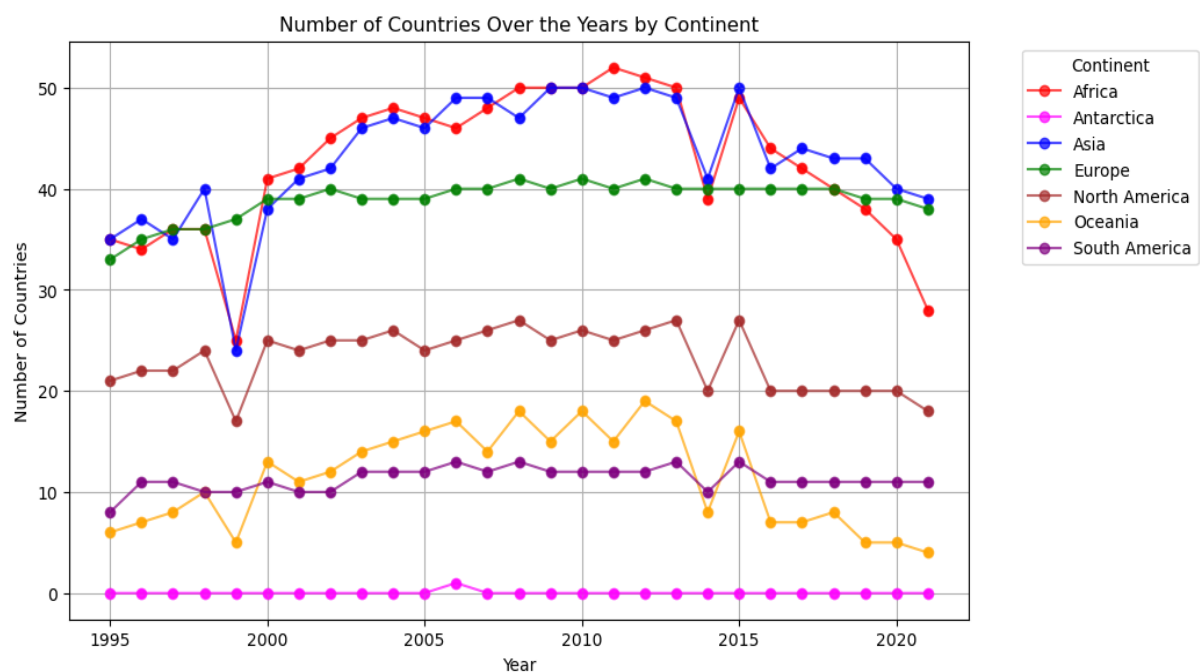
(b) No of countries over the years

Figure 2 presents an intriguing trend regarding the number of countries importing goods from Bangladesh. Beginning with exports to 138 countries in 1995, this figure reached its peak at 199 in 2012. Remarkably, after experiencing several fluctuations, the total number decreased to its initial value of 138 by the year 2021.



**Figure 2:** No of countries over the years

**(c) No of countries over the years by continent**

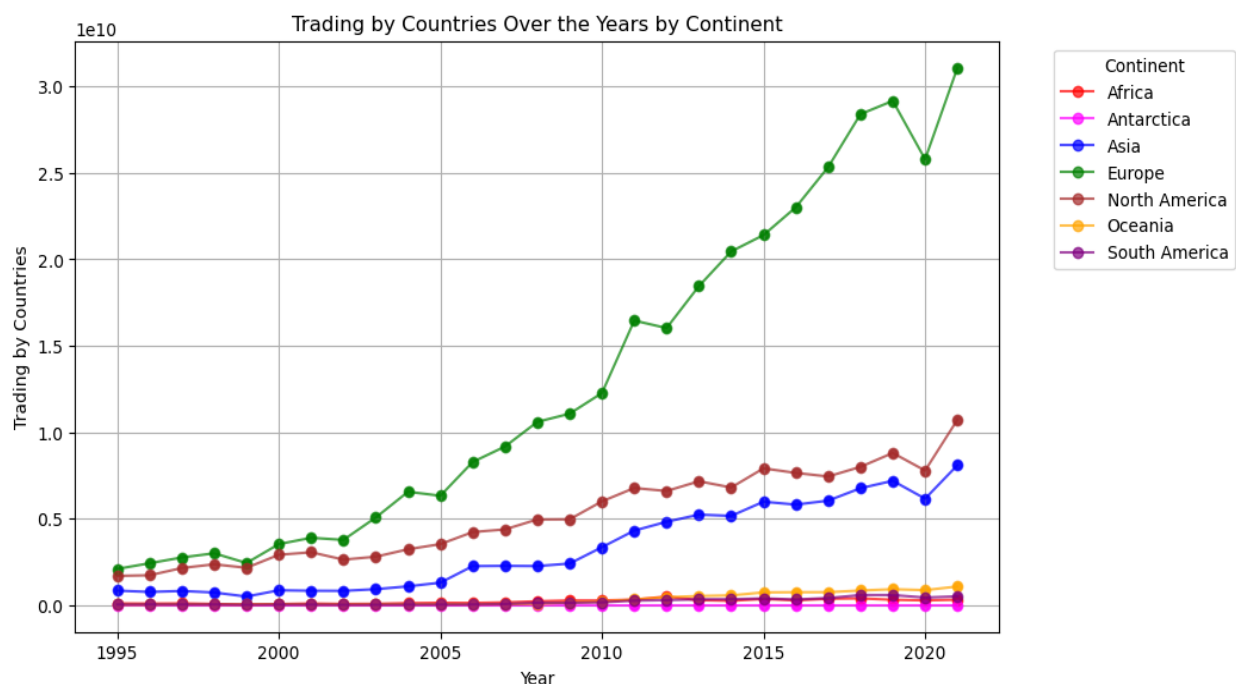


**Figure 3:** No of countries over the years by continent

Figure 3 illustrates the consistency and fluctuations in the number of countries importing goods from Bangladesh across different continents. South America exhibited remarkable consistency in the total number of importing countries, with figures of 8 in 1995 and 11 in 2021. In contrast, Europe experienced a modest increase of only 5 countries, rising from 33 to 38 over the past 27 years. The number of Asian importing countries surged to 50 in 2015 from 36 in 1995, but subsequently declined to 39 by 2021. Both Oceania and North America displayed similar trends of increase and decrease in the number of importing countries over time. However, the most significant fluctuations were observed in Africa, where Bangladesh initially exported to 35 countries in 1995. This number peaked at 52 in 2011 but then experienced a decline, dropping to 28 countries by 2021.

#### (d) Trading by countries over the years by continent

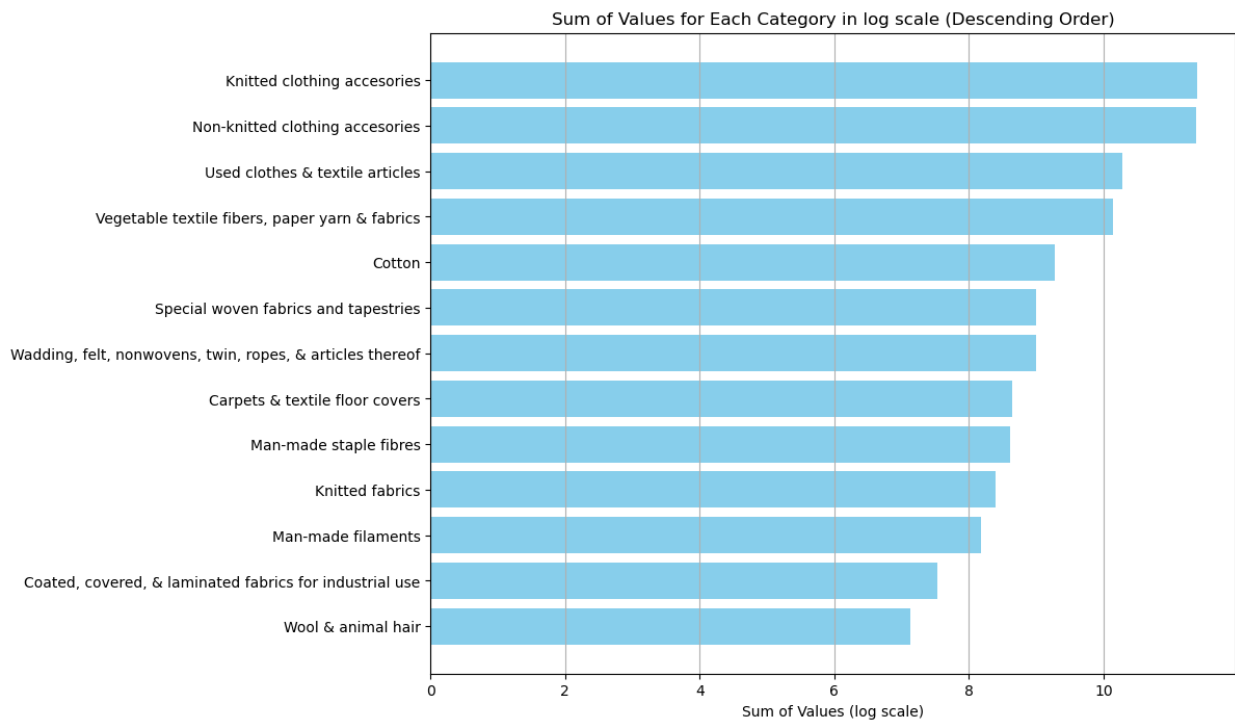
Contrary to the fluctuating number of European countries importing Bangladeshi textile products, as shown in Figure 3, the overall trade volume remained consistently high over the 27-year period. Starting from US\$ 0.2 million in 1995 and reaching US\$ 3.3 million in 2021, Europe consistently held the highest trade volume. Similar patterns are noticeable in the cases of Africa and Asia, where despite a decrease in the number of importing countries over the years, trade volumes have steadily increased.



**Figure 4:** Trading by countries over the years by continent

#### (e) Categories of Export Products by Value

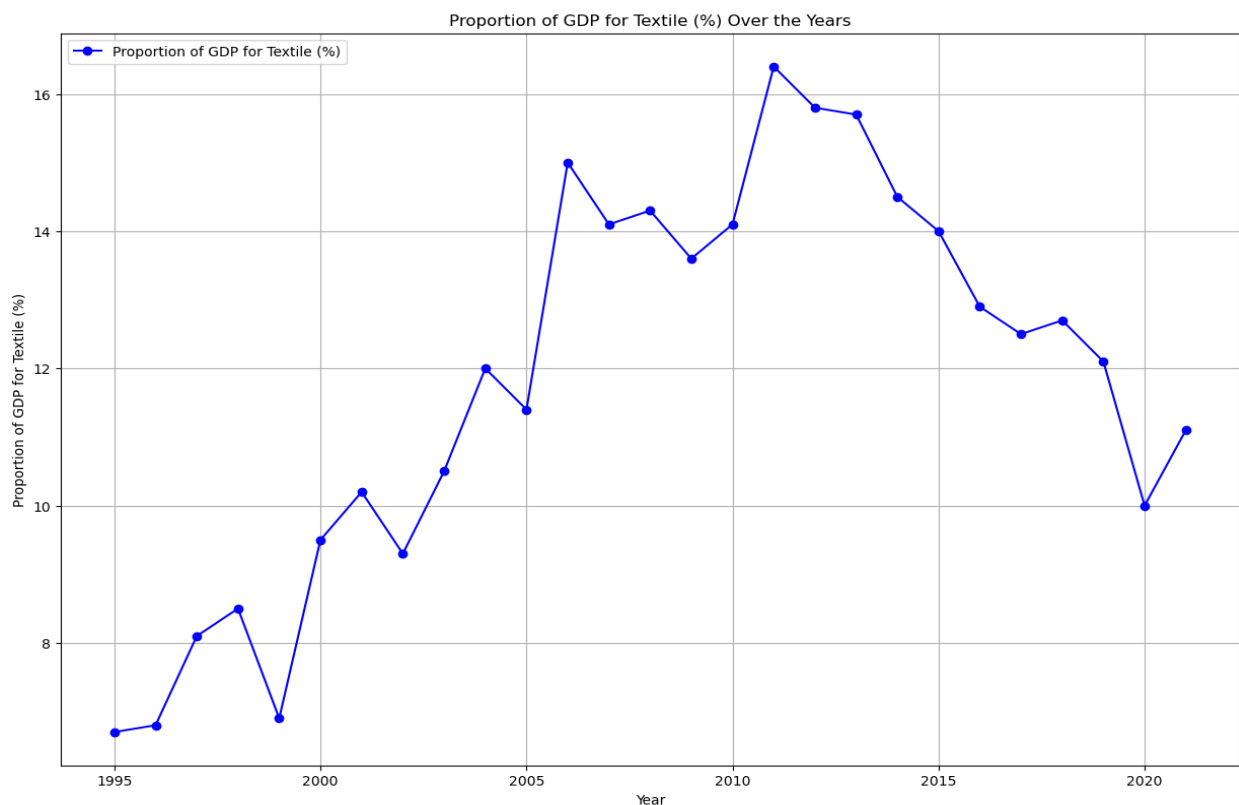
The data underwent log scaling (Figure 5), arranging the sum of values for each category of exported goods in descending order. The findings unveiled that textile products, specifically (a) knitted clothing accessories, (b) non-knitted clothing accessories, and (c) used clothes & textile articles, significantly surpassed the remaining product categories. Following closely were vegetable textile fibres, yarn, and fabrics.



**Figure 5:** Sum of values for each category in log scale (Deceasing order)

#### (f) Proportion of GDP for Textile (%) over the years

The contribution of textile products' exports to the overall proportion of GDP began at a modest percentage of approximately 6.5% in 1995 and peaked at 16.5% (an All-Time High) in 2011. Following this peak, it exhibited a declining trend, dropping to around 10% by 2020.



**Figure 6:** Sum of values for each category in log scale (Deceasing order)



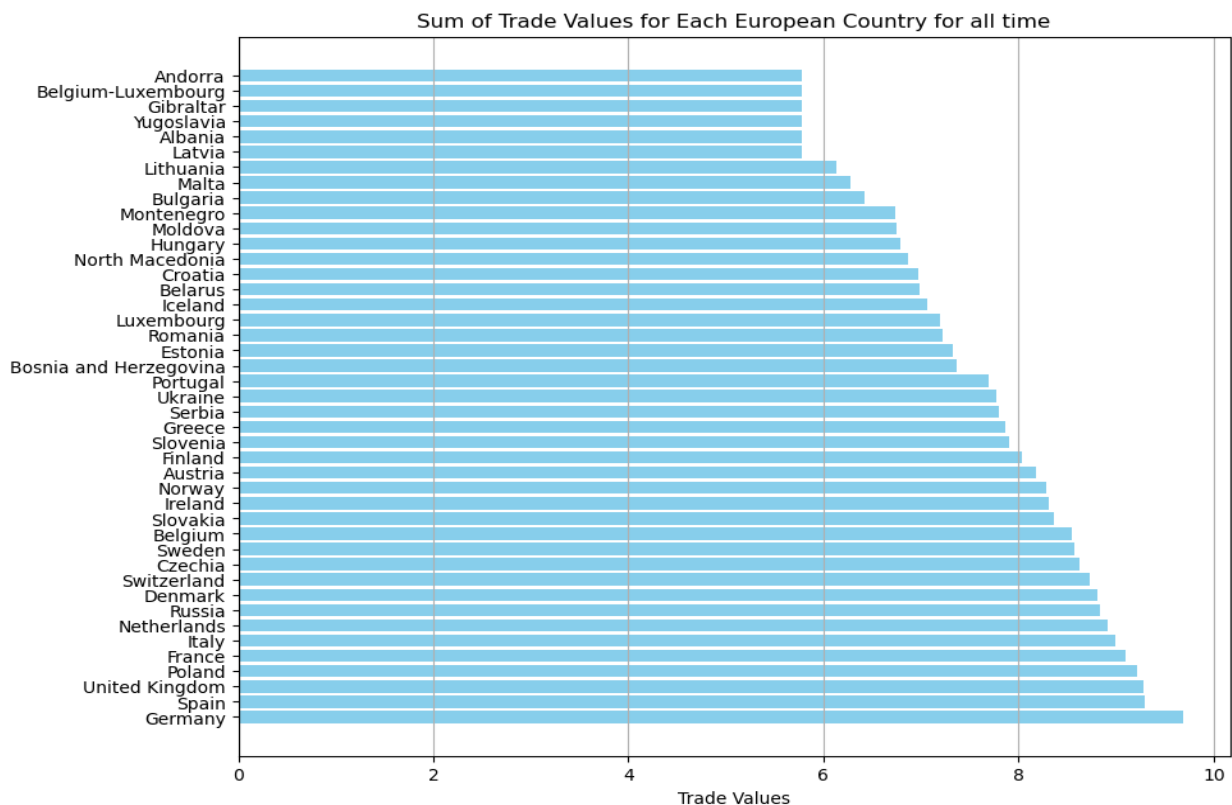
### (g) Inequivalent Measurement between different export business over the years

To assess the disparity in measurements among various export businesses over time, the Gini coefficient was calculated. The Gini coefficient is a statistical measure of the degree of variation represented in a set of values, used especially in analyzing income inequality. In 1995, the coefficient stood at 0.86, nearly reaching 0.92 by 2012. Subsequently, it has shown a decreasing trend, declining to approximately 0.90 by 2021. This suggests that the disparity in measurements among various export businesses has decreased over time, although it still remains high.



**Figure 7:** Inequivalent Measurement between different export business over the years

### (h) Trade Value for each European country



**Figure 8:** Sum of Trade Value for each European country by all time

The bar graph in figure 8 represents the sum of trade values for each European country for all time. The x-axis represents the sum of trade values in log scale, while the y-axis represents the countries. The countries are sorted in descending order based on their trade values. The highest trade value is for Germany, followed by the Spain, United Kingdom, Poland and France. The lowest trade value is for Andorra.

## DISCUSSION

The current research project on " Bangladesh's Exports: Analysis of Trends and Affecting Factors" holds paramount significance due to various key aspects:

### **(a) Building on Previous Research**

While prior studies have delved into specific aspects of Bangladesh's trade, this research project aimed for a more expansive examination. It synthesizes and builds upon previous research findings, widening the scope to encompass various factors influencing export dynamics.

**(b) Identification of Dominant Contributors:** Previous studies have identified the ready-made garments (RMG) industry as a significant contributor to Bangladesh's export earnings. This research extends beyond this singular focus to explore a wider range of factors impacting exports, including the influence of natural disasters, political changes, and market dynamics.

**(c) Economic Growth and National Development:** Bangladesh heavily relies on its export sector for economic growth, poverty reduction, and overall national development. The infographics discussed earlier supports this notion very strongly.

**(d) Impact of Dynamic Phenomena:** The country faces various dynamic phenomena, including natural calamities, political changes, and global developments, which significantly affected its export sector. Analyzing these impacts is vital for implementing adaptive measures and ensuring resilience in the face of such challenges.

**(e) Policy Formulation and Decision Making:** The comprehensive overview of Bangladesh's exports to diverse regions coupled with the analysis of influential factors from 1995 to 2021 aid policymakers, investors, and businesses in making informed decisions, formulating effective policies, and strategizing for future challenges.

**(f) Trade Potential and Untapped Opportunities:** The research underscored the untapped trade potential of Bangladesh, highlighting the need for addressing transaction costs and trade barriers. Understanding these impediments helps in devising strategies to maximize trade potential and explore new markets.

**(g) Global Trade Dynamics:** By focusing on trade relationships with different continents, the study sheds light on Bangladesh's global trade dynamics. This broader perspective aids in understanding the country's position in the global market and its trade patterns with various economies.

**(h) Answering Crucial Research Questions:** The research addressed pivotal questions concerning the impact of natural disasters, the influence of political changes, primary importers, and major exported items. These answers provided a nuanced understanding crucial for policymakers and stakeholders.

While the research provides valuable insights, there exist limitations and opportunities for further exploration.

## **Limitations**

- (a) Reliance on secondary data sources, like databases and reports, might introduce limitations concerning data accuracy or biases inherent in the original sources.
- (b) Additionally, the study leans toward quantitative analysis, potentially overlooking qualitative aspects that could offer deeper contextual understanding.

## **Perspectives and Future Directions**

Future studies could explore qualitative assessments by engaging stakeholders through interviews or surveys. These methods could provide a more nuanced understanding of the diverse factors influencing export trends. Furthermore, comparative studies with other nations or investigations into the role of technological advancements in boosting export competitiveness could broaden perspectives.

## **Trade Potential and Policy Implications**

Future research could focus on strategies to harness Bangladesh's untapped trade potential, reduce transaction costs, and develop policies promoting diversification and quality enhancement in exports. Additionally, analyzing the implications of regional collaborations or trade agreements on Bangladesh's export sector could offer valuable insights.

In summary, while this research contributes significantly to understanding Bangladesh's export landscape, future studies concentrating on qualitative aspects, policy implications, and regional trade dynamics could provide a more comprehensive perspective, aiding in the formulation of targeted strategies for export growth and resilience.

## **CONCLUSION**

The research effectively addresses the research questions posed at the beginning of the study and interprets them within the context of the findings. Analyzing the provided data alongside the research questions reveals coherence and relevance in the conclusions.

The research questions aimed to understand various facets of Bangladesh's export landscape from 1995 to 2021, such as major exported items, primary importers, the impact of natural disasters, and the influence of political changes on the export sector. The conclusions align with these inquiries, demonstrating consistency between the research objectives and the findings obtained from the data analysis.

For instance, the analysis highlighted ready-made garments (RMG) as a dominant contributor to Bangladesh's exports, validating previous studies. It also addressed the impact of natural calamities, political changes, and global developments on the country's export trends, showcasing a comprehensive examination as intended by the research questions.

Furthermore, the observed fluctuations in the proportion of GDP attributed to textile product exports, coupled with changes in the Gini coefficient, offer an insightful interpretation of the export dynamics over the years. These findings provide a nuanced understanding of Bangladesh's export landscape, corroborating the research questions and adding depth to the conclusions drawn.

In essence, the conclusions derived from the analysis closely correlate with the research questions, interpreting the data in a manner that makes sense within the context of the study. The findings aren't necessarily surprising but rather validate and extend existing knowledge, providing valuable insights into Bangladesh's export trends and the factors shaping them.

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