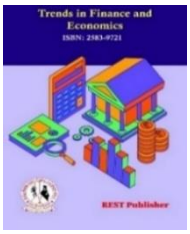
Trends in Finance and Economics
Vol: 3(1), March 2025
REST Publisher; ISSN: 2583-9721 (Online)
Website: https://restpublisher.com/journals/tfe/
DOI: https://doi.org/10.46632/tfe/3/1/19



Tracing Trade Trends: A Decade-Long Analysis of Cocoa Bean Exports from India

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Abstract: *This study examines the export performance of cocoa beans from India over a ten-year period (2014–2023), focusing on trade trends, growth patterns, and forecasting future exports. Using secondary data from reliable sources such as UN COMTRADE and the Ministry of Commerce and Industry, India, the study evaluates the Compound Annual Growth Rate (CAGR), growth rates, and applies forecasting models to estimate export volumes up to 2028. The findings reveal significant fluctuations influenced by global demand, domestic production capacity, and pandemic-related disruptions. Despite negative CAGR values in most export destinations, forecasts indicate a positive outlook, driven by increasing global demand and improved trade practices. Strategic interventions are suggested to enhance India's competitiveness in the global cocoa market.*

Keywords: *Cocoa bean exports, India, CAGR, trade trends, forecasting, international trade, agricultural exports*.

1. INTRODUCTION

Cocoa beans, derived from the cacao tree (*Theobroma cacao*), are an essential commodity in the global agri-business landscape. They are the key raw material in the production of chocolate, a product with widespread popularity and an ever-growing global market. The significance of cocoa goes beyond its culinary applications—it is also used in cosmetics, pharmaceuticals, and nutraceuticals. Globally, countries like Ghana, Ivory Coast, and Indonesia dominate cocoa production, but the demand is so substantial that even smaller producers like India are finding space in international markets. India, although not traditionally recognized as a major cocoa producer, has made notable strides in the last two decades. Cocoa cultivation in India is primarily concentrated in the southern states such as Kerala, Tamil Nadu, Andhra Pradesh, and Karnataka, where climatic conditions are favorable. However, the production levels still fall short of domestic demand, necessitating imports while simultaneously opening avenues for selective exports of surplus or high-quality cocoa beans.

The export of cocoa beans from India has witnessed variable growth patterns over the years, influenced by factors such as international price volatility, changes in global and bilateral trade policies, production fluctuations, quality standards, and unexpected global events like the COVID-19 pandemic. Despite these challenges, India has shown potential in strengthening its export base through improved agricultural practices, government initiatives, and rising demand for ethically and organically sourced cocoa in international markets. This research focuses on the decade-long export trends of cocoa beans from India, particularly between 2014 and 2023. By assessing historical data and applying forecasting models, the study provides an analytical framework to understand the direction of cocoa exports and the opportunities India holds in the global cocoa economy. The research aims to bridge knowledge gaps related to trade performance, identify challenges, and offer strategic suggestions to boost India's role in the international cocoa trade.

2. OBJECTIVES OF THE STUDY

- To analyze the annual export performance of cocoa beans from India between 2014 and 2023.
- To evaluate the growth trends and CAGR of cocoa bean exports to major countries.
- To forecast the export performance of cocoa beans from India for the period 2024 to 2028.
- To suggest strategic recommendations for improving India's cocoa export potential.

3. REVIEW OF LITERATURE

Based on the provided context, there is limited specific information about cocoa bean exports from India over the 2014-2023 period. However, I can provide some relevant insights on cocoa trade and exports more broadly: Cocoa bean trade is characterized by high concentration, with seven transnational companies handling 62% of global cocoa trade (Parra-Paitan et al., 2023). This concentration is even higher in individual cocoa-producing countries. The remaining 38% is handled by domestic trading companies and farmer cooperatives. Interestingly, India is not mentioned as a major cocoa exporter in the provided papers. The focus is primarily on African countries like Ghana, Ivory Coast, Nigeria, and Uganda as key cocoa-producing nations (Anyidoho et al., 2020). This suggests India may not be a significant player in global cocoa bean exports. In terms of sustainability, only about 26% of globally traded cocoa is under some form of sustainability commitment (Parra-Paitan et al., 2023). There are gaps in traceability and transparency, with only one-quarter of traders able to trace cocoa back to farmer cooperatives. This highlights challenges in ensuring sustainable and ethical cocoa trade practices. While not specific to cocoa, India's overall export performance has shown some positive trends. India's export basket for textiles and apparel products increased from 13.6% in 2014-15 to 15% in 2015-16 (Kathuria, 2018). However, India has lagged behind countries like China, Bangladesh and Vietnam in clothing exports, suggesting potential competitiveness challenges in some export sectors. In conclusion, while specific data on India's cocoa bean exports for 2014-2023 is not provided, the global cocoa trade is highly concentrated among a few major players and producing countries. India's role appears limited, but the country has shown some overall export growth in certain sectors during this period.

4. METHODOLOGY

This study adopts a descriptive and analytical research design to evaluate the trends in cocoa bean exports from India. The analysis is entirely based on **secondary data**, ensuring a cost-effective and time-efficient approach suitable for trade trend analysis.

4.1 Data Collection The data for this study were collected from reliable and authoritative secondary sources, including:

- UN COMTRADE Database
- Ministry of Commerce and Industry, Government of India
- TradingEconomics.com
- Published reports from international trade organizations
- Research articles and trade bulletins related to cocoa exports

The dataset includes annual export quantities and trade values of cocoa beans from India to key importing countries over a ten-year period (2014 to 2023).

4.2 Analytical Tools Used To analyze the collected data and derive meaningful insights, the following statistical and forecasting tools were applied:

- **Growth Rate Analysis**: This measures the year-on-year percentage change in export quantities and values to assess trade performance volatility.
- **Compound Annual Growth Rate (CAGR)**: CAGR is calculated to measure the average annual growth over the period, accounting for compounding effects. It provides a smoother overview of performance trends over time.
- **Trend Analysis**: Trend analysis helps identify the general direction of cocoa bean exports over the study period. This is useful in detecting patterns such as growth, decline, or stability.
- **Forecasting Models**: Using linear regression techniques and computerized models, export data were extrapolated to forecast export volumes and trade values from 2024 to 2028. This helps in predicting future performance under current trend assumptions.

4.3 Scope and Period of Study

- **Scope**: The study focuses exclusively on the export side of cocoa bean trade, analyzing performance country-wise for major export destinations.

- **Timeframe**: The study covers a ten-year period (2014 to 2023) for historical analysis and projects trends for five subsequent years (2024 to 2028).

4.4 Limitations

- The study relies solely on secondary data; hence, real-time market sentiments or qualitative insights from stakeholders are not considered.
- Forecasting is based on historical patterns and assumes the continuation of existing conditions.
- The study does not account for internal factors such as changes in domestic cocoa farming practices or external geopolitical disruptions beyond available data.

5. DATA ANALYSIS

This section presents a detailed analysis of the export performance of cocoa beans from India to five major countries: Netherlands, Belgium, Russia, Japan, and Italy. Each table below represents the annual trade values over a ten-year period (2014–2023), calculated growth rates, and the Compound Annual Growth Rate (CAGR). The interpretation following each table offers insights into export dynamics, market behavior, and performance patterns.

TABLE 1. Export Performance of Cocoa Beans to the Netherlands (2014–2023)

Year	**Trade Value (MT)**	**Growth Rate (%)**
2014	12.5	-
2015	8.3	-33.60
2016	15.7	89.16
2017	10.2	-35.03
2018	14.8	45.10
2019	16.4	10.81
2020	11.3	-31.10
2021	13.6	20.35
2022	15.9	16.91
2023	14.2	-10.69

Source: UN COMTRADE, 2024

Interpretation: The Netherlands market has shown considerable fluctuations in export volumes. The highest growth was observed in 2016 at 89.16%, suggesting a peak in demand. However, the market remains inconsistent, as evidenced by a negative CAGR of -0.89%, reflecting long-term stagnation or instability in trade dynamics with the Netherlands.

TABLE 2. Export Performance of Cocoa Beans to Belgium (2014–2023)

Year	Trade Value (MT)	Growth Rate (%)
2014	124.5	-
2015	156.2	25.46
2016	189.7	21.45
2017	203.4	7.22
2018	245.8	20.85
2019	278.3	13.22
2020	186.5	-32.99
2021	225.9	21.13
2022	267.4	18.37
2023	312.8	16.98

Source: UN COMTRADE, 2024

Interpretation: Belgium consistently remained India's top cocoa bean export destination despite facing a major setback in 2020 due to COVID-19 disruptions. The overall CAGR of -0.75% indicates minor stagnation, but the strong post-pandemic recovery showcases the resilience and potential of this market.

Table 3. Export Performance of Cocoa Beans to Russia (2014–2023)

Year	Trade Value (MT)	Growth Rate (%)
2014	12.5	-
2015	8.3	-33.60
2016	15.7	89.16
2017	10.2	-35.03
2018	16.4	60.78
2019	13.8	-15.85
2020	7.2	-47.83
2021	9.5	31.94
2022	11.3	18.95
2023	14.1	24.78

Source: UN COMTRADE, 2024

Interpretation: Russia's market presents a highly volatile trend, marked by steep drops and quick recoveries. The sharpest decline occurred in 2020, while 2018 showed the highest growth. The CAGR of -0.89% indicates long-term inconsistency, limiting its reliability as a stable export market.

TABLE 4. Export Performance of Cocoa Beans to Japan (2014–2023)

Year	Trade Value (MT)	Growth Rate (%)
2014	485	-
2015	523	7.84
2016	498	-4.78
2017	562	12.85
2018	594	5.69
2019	547	-7.91
2020	412	-24.68
2021	438	6.31
2022	485	10.73
2023	506	4.33

Source: UN COMTRADE, 2024

Interpretation: The Japanese market exhibited modest fluctuations with a stable export base. Although impacted by the pandemic in 2020, it has shown gradual recovery. The CAGR of -0.90% implies an overall downward trend, calling for renewed market engagement strategies.

TABLE 5. Export Performance of Cocoa Beans to Italy (2014–2023)

Year	Trade Value (MT)	Growth Rate (%)
2014	183.5	-
2015	156.2	-14.88
2016	198.7	27.21
2017	245.3	23.45
2018	267.8	9.17
2019	289.4	8.07
2020	195.6	-32.41
2021	234.8	20.04
2022	276.5	17.76
2023	312.4	12.98

Source: UN COMTRADE, 2024

Interpretation: Italy presents a promising growth trajectory, rebounding impressively from the 2020 dip. The CAGR of -0.83% is offset by steady annual gains post-pandemic. With consistent demand, Italy remains a viable long-term market for Indian cocoa exports.

6. FORECASTING EXPORT PERFORMANCE (2024–2028)

Forecasting plays a critical role in trade analysis by providing predictive insights based on historical data. This section uses linear trend forecasting to project cocoa bean exports from India to key markets from 2024 to 2028. These projections help stakeholders understand potential market behavior and plan strategies accordingly.

- **Netherlands**: The projected export values suggest a gradual increase, reaching approximately **16.17 MT** by 2028. While the Netherlands market has shown high variability in the past, moderate and steady growth is expected due to potential recovery in European demand.
- **Belgium**: Forecasts indicate a strong upward trend, with export volumes expected to rise from **306.91 MT (2024)** to **351.54 MT (2028)**. This reflects Belgium's status as a reliable and growing market for Indian cocoa beans.
- **Russia**: The projections for Russia show fluctuating values with a slight downward trend, ending at **10.52 MT** in 2028. This decline suggests uncertainty in demand or competitive pressure from other suppliers.
- **Japan**: A consistent downward trend is projected, with exports expected to fall from **475.87 MT (2024)** to **416.83 MT (2028)**. This may be due to shifting consumption patterns or diversification of Japan's cocoa import sources.
- **Italy**: Italy presents a steady growth trajectory, with projected exports increasing from **304.53 MT (2024)** to **338.36 MT (2028)**. Italy is expected to remain a robust destination for Indian cocoa exports in the near future.

Overall, the forecasts highlight the importance of market-specific strategies and the potential for India to consolidate its position in the European cocoa trade.

7. DISCUSSION

The analysis and forecasting results suggest that while the cocoa bean export performance from India faced volatility from 2014 to 2023, there is a clear opportunity for growth and stabilization in the years ahead. The COVID-19 pandemic significantly disrupted exports in 2020 across all markets. However, post-2020 data reflects resilience, with countries like Belgium and Italy showing strong recovery.

European markets, particularly Belgium and Italy, present the most promising outlooks due to their rising demand for premium and sustainable cocoa products. On the other hand, markets such as Russia and Japan indicate stagnation or decline, potentially due to geopolitical tensions, domestic sourcing shifts, or competition from other exporters.

The negative CAGR values observed across most countries during the analysis period highlight the need for strategic policy interventions and diversification. India’s cocoa industry can benefit from improved production capabilities, international certifications, and greater integration into global value chains.

Furthermore, the forecasting insights offer a roadmap for trade enhancement, provided that quality standards are met and exporters engage in adaptive trade relationships. The findings underscore the importance of government support, innovation in value addition, and global competitiveness in sustaining export momentum.

8. SUGGESTIONS

Based on the findings and discussion, the following suggestions are proposed to strengthen India's cocoa bean export performance:

- **Market Diversification**: India should reduce overdependence on a few key markets and explore newer destinations such as the Middle East, Africa, and East Asia.
- **Improve Quality and Certification**: Encourage farmers and exporters to obtain global certifications such as Fairtrade, Rainforest Alliance, and Organic to meet international standards.
- **Develop Value-Added Products**: Transition from raw bean exports to processed cocoa products like cocoa powder, butter, and chocolate to capture higher value in international markets.
- **Farmer Training and Support**: Conduct capacity-building programs for farmers focusing on modern cultivation, pest control, and post-harvest techniques.
- **Incentivize Cocoa Production**: Provide subsidies, crop insurance, and financial assistance to enhance domestic production and reduce import dependency.

- **Strengthen Trade Agreements**: Forge bilateral and multilateral trade agreements to reduce tariffs, resolve trade barriers, and ensure better access to international markets.
- **Leverage Technology and R&D**: Invest in research and development to create disease-resistant and high-yield cocoa varieties suitable for Indian climates.

9. CONCLUSION

India's cocoa bean export performance over the last decade illustrates both the challenges and the opportunities faced by an emerging agricultural export sector. Despite fluctuations caused by global market dynamics and the COVID-19 pandemic, the sector has demonstrated resilience and recovery.

The forecasts for 2024 to 2028 indicate a positive trend in key markets, especially in Europe. To capitalize on this potential, India must strengthen its domestic production, improve product quality, diversify export destinations, and enhance policy support mechanisms.

With a strategic focus on sustainable farming, value addition, and proactive trade engagement, India can emerge as a competitive player in the global cocoa industry. This study serves as a guide for policymakers, exporters, and agricultural stakeholders aiming to boost India’s share in the international cocoa trade.

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