Export Competitiveness of Indian Dairy Products in Asian Markets

Sujal Jaiswal, Yashpal Chandak, International Trade & Business, Parul Institute of Management & Research, Parul University

Dr. Nirbhan Singh, Parul University

ABSTRACT

India is the largest producer of milk globally, contributing nearly 24–25% of total world dairy output; however, its share in global dairy exports remains below 1%, indicating a significant gap between production capacity and export performance (Food and Agriculture Organization [FAO], 2024; National Dairy Development Board [NDDB], 2023). This study examines the export competitiveness of Indian dairy products in Asian markets, focusing on key determinants such as productivity, value addition, infrastructure, and trade barriers. Rapid urbanization, rising incomes, and changing consumption patterns in Asian countries such as Bangladesh, the United Arab Emirates, and Malaysia have increased demand for dairy products, creating potential export opportunities for India (United States Department of Agriculture [USDA], 2024). The study is based on a descriptive and analytical research design using secondary data collected from government reports, international databases, and academic literature. Comparative and trend analyses were used to evaluate India's performance relative to leading dairy exporters such as the Netherlands. The findings reveal that despite high production levels, India's dairy exports are limited due to high domestic consumption, low productivity, and insufficient value addition (Department of Animal Husbandry and Dairying, 2024). In contrast, countries like the Netherlands achieve higher export competitiveness through advanced processing, strong supply chains, and higher milk yield per animal, which is more than four times that of India (European Commission, 2023). The study concludes that India has significant untapped potential in Asian dairy markets but requires a strategic shift from a production-oriented approach to a value-driven export strategy. Enhancing productivity, investing in processing infrastructure, strengthening cold chain systems, and ensuring compliance with global quality standards are essential to improving competitiveness. By adopting these measures, India can strengthen its position in international dairy trade and expand its export footprint in Asia.

Keywords: Dairy Industry, Export Competitiveness, Indian Dairy Exports, Asian Markets, Value Addition, Milk Productivity, Supply Chain Efficiency, Cold Chain Infrastructure,

INTRODUCTION

The dairy sector is a vital component of the global agricultural economy, contributing significantly to food security, employment generation, and international trade. Globally, the demand for dairy products has been increasing due to population growth, urbanization, and rising income levels, particularly in developing regions. Among dairy-producing nations, India holds a dominant position as the world's largest producer of milk, accounting for nearly 24–25% of global production (Food and Agriculture Organization [FAO], 2024). The sector plays a crucial role in India's rural economy, supporting the livelihoods of over 80 million households and contributing substantially to agricultural GDP (National Dairy Development Board [NDDB], 2023).

Despite its strong production base, India's participation in global dairy trade remains limited, with exports contributing less than 1% of total global dairy exports (OECD, 2023). This imbalance highlights a structural issue within the industry, where high domestic consumption absorbs a majority of production, leaving limited surplus for export (Department of Animal Husbandry and Dairying, 2024). In contrast, smaller producers such as the Netherlands and New Zealand have established themselves as leading exporters through higher productivity, advanced processing capabilities, and efficient supply chain systems.

Asian markets present a significant opportunity for India to expand its dairy exports. Countries such as Bangladesh, the United Arab Emirates, Malaysia, Vietnam, and Nepal are experiencing rapid growth in dairy consumption due to changing dietary habits and increasing purchasing power (United States Department of Agriculture [USDA], 2024). India enjoys several natural advantages in these markets, including geographical proximity, lower transportation costs, and cultural compatibility in dairy consumption patterns. However, these advantages have not been fully leveraged due to multiple constraints.

Key challenges affecting India's export competitiveness include low productivity per animal, inadequate cold chain infrastructure, inconsistent quality standards, and non-compliance with international sanitary and phytosanitary (SPS) regulations (Joshi, 2020). Additionally, the sector remains largely focused on liquid milk consumption, with limited emphasis on value-added products such as cheese, butter, and dairy ingredients, which are more competitive in global markets. The lack of branding, fragmented supply chains, and trade barriers further restrict India's ability to compete with established exporters.

In this context, the present study aims to analyze the export competitiveness of Indian dairy products in Asian markets by examining production trends, comparative advantages, and structural challenges. The study also seeks to identify key factors influencing trade performance and to propose strategic recommendations for enhancing India's position in regional and global dairy markets.

Research Objectives

1. To analyze the export competitiveness of Indian dairy products in Asian markets with respect to trade performance and market share.
2. To examine the trends and identify major export destinations along with the demand for different dairy products in Asian countries.
3. To assess the key factors influencing export competitiveness, including productivity, quality standards, pricing, logistics, and non-tariff barriers.
4. To identify the challenges faced by Indian dairy exporters and propose strategic recommendations for improving export performance, value addition, and global competitiveness.

Hypothesis

H_1: There is a significant relationship between productivity, value addition, and supply chain efficiency and the export competitiveness of Indian dairy products in Asian markets.

H_0: There is no significant relationship between productivity, value addition, and supply chain efficiency and the export competitiveness of Indian dairy products in Asian markets.

LITERATURE REVIEW

The export competitiveness of Indian dairy products has been widely examined in academic and policy-oriented research, with a primary focus on trade performance, comparative advantage, and structural constraints. Several studies highlight that despite India's position as the world's largest milk producer, its share in global dairy exports remains minimal due to domestic consumption pressures and limited processing capabilities (FAO, 2024; NDDB, 2023).

Empirical research using gravity models indicates that India's dairy exports are significantly influenced by factors such as economic size (GDP), geographical proximity, and trade costs. Studies by Arora et al. demonstrate that India's exports are largely concentrated in neighboring countries and Middle Eastern markets, suggesting a strong dependence on distance-based competitiveness and regional trade advantages. Similarly, Singh et al. (2022) found that India exhibits

revealed comparative advantage (RCA) in selected dairy products such as skimmed milk powder and butter; however, this advantage is inconsistent across product categories and time periods.

Several researchers have emphasized structural and institutional challenges limiting India's export potential. Ohlan (2019) identified issues such as market concentration, export instability, and vulnerability to domestic production fluctuations. Joshi (2020) further highlighted the impact of non-tariff barriers, particularly sanitary and phytosanitary (SPS) standards, which restrict access to high-value international markets. In addition, inadequate cold chain infrastructure, fragmented supply chains, and lack of global branding have been identified as key constraints affecting export competitiveness (NDDB, 2023).

Comparative studies provide important insights into global competitiveness. Landes (2021) and OECD (2023) reports indicate that countries like the Netherlands and New Zealand achieve strong export performance through high productivity, advanced technology adoption, and extensive value addition. These countries focus on processed dairy products such as cheese, butter, and dairy ingredients, which yield higher export value compared to raw or liquid milk.

Research also highlights emerging opportunities in Asian markets. The USDA (2024) reports that rising income levels, urbanization, and changing dietary patterns in countries such as Bangladesh, UAE, Malaysia, and Vietnam are driving demand for dairy products. Studies suggest that India has a natural advantage in these markets due to geographical proximity and cost competitiveness; however, it must improve quality standards, diversify product offerings, and strengthen logistics to fully exploit these opportunities.

Overall, the literature indicates that while India has strong production capabilities, its export competitiveness is constrained by low productivity, limited value addition, infrastructure gaps, and regulatory challenges. The consensus across studies is that a strategic shift toward efficiency, quality improvement, and market-oriented production is essential for enhancing India's position in global dairy trade.

RESEARCH METHODOLOGY

Research Methodology

This study adopts a descriptive and analytical research design to examine the export competitiveness of Indian dairy products in Asian markets. The research is entirely based on secondary data, as it enables comprehensive analysis of industry trends, trade performance, and comparative insights across countries.

Data Sources

The study utilizes data collected from reliable and authentic sources, including:

- Government publications such as reports from the Ministry of Agriculture and the Department of Animal Husbandry and Dairying
- Publications from organizations like the National Dairy Development Board (NDDB)
- International databases such as FAO, World Bank, and UN COMTRADE
- Research journals, academic articles, and industry reports

These sources ensure the credibility and accuracy of the data used in the analysis.

Data Collection Method

The data has been collected using the documentary analysis method, which involves systematic review and evaluation of published documents, reports, and statistical databases. Relevant information was identified, compiled, and verified from multiple sources to maintain consistency and reliability.

Sampling Technique

A purposive sampling method has been used to select relevant literature, reports, and datasets. Only those sources that are directly related to dairy exports, trade competitiveness, and Asian markets were included in the study.

Analytical Tools and Techniques

The study employs various analytical tools, including:

- Comparative analysis (India vs. major exporting countries)
- Trend analysis of dairy exports
- Ratio analysis (productivity and export performance)
- Trade indicators such as Revealed Comparative Advantage (RCA)

Scope of the Study

The research focuses on Indian dairy exports in selected Asian markets and evaluates key factors influencing competitiveness, such as productivity, value addition, infrastructure, and trade barriers.

Limitations

The study is limited to secondary data and does not include primary research. Differences in data reporting standards across countries and the absence of advanced econometric analysis may affect the depth of findings.

RESULTS AND FINDINGS

The results are derived using secondary data analysis, comparative analysis, and ratio-based evaluation, as outlined in the research methodology. The findings are presented using structured tables for clarity and academic presentation.

Table 1: Comparative Production and Export Performance

Indicator	India	Netherlands
Milk Production	~230+ million tonnes	~14 billion kg
Global Rank (Production)	1st	Major exporter
Export Share	< 1%	Very high (export-driven)
Market Orientation	Domestic-focused	Export-oriented

Interpretation:
India leads in production but lags significantly in export performance, confirming that production volume alone does not ensure global competitiveness.

Table 2: Productivity Comparison

Indicator	India	Netherlands
Milk Yield per Animal	~2000 kg/year	~8700 kg/year
Productivity Ratio	1	4.3

Interpretation:
The Netherlands achieves more than 4 times higher productivity, reducing cost per unit and improving export competitiveness.

Table 3: Value Addition and Product Utilization

Aspect	India	Netherlands
Liquid Milk Consumption	Very High	Moderate
Processed Products	Limited	Extensive
Major Export Products	SMP, Butter	Cheese, Ingredients
Value Addition Level	Low	High

Interpretation:
Higher value addition in the Netherlands leads to greater export earnings, while India's focus on liquid milk limits its global trade potential.

Table 4: Supply Chain and Infrastructure

Component	India	Netherlands
Cold Chain	Developing	Advanced
Logistics Efficiency	Moderate	High
Traceability	Limited	Strong
Infrastructure	Inconsistent	Well-developed

Interpretation:
Efficient supply chains and strong infrastructure significantly enhance export competitiveness.

Table 5: Key Factors Affecting Export Competitiveness

Factor	Impact on India's Competitiveness
Low Productivity	Negative
Limited Value Addition	Negative
Cold Chain Gaps	Negative
SPS Compliance Issues	Negative
Cost Advantage	Positive
Geographic Proximity	Positive

Interpretation:
While India has cost and location advantages, structural weaknesses reduce its overall competitiveness.

Table 6: Major Export Destinations and Demand

Country	Key Dairy Products Demanded
Bangladesh	Milk Powder, Ghee
UAE	Butter, Ghee, Processed Products
Nepal	Milk Powder, Ice Cream
Malaysia	Milk Powder, Dairy Ingredients
Vietnam	Processed Dairy Products

Interpretation:
Asian markets show strong demand for both basic and value-added dairy products, indicating significant export potential.

Overall Findings

- India dominates in production but not in exports.
- Productivity gap is a major limiting factor.
- Value addition and processing determine export success.
- Supply chain efficiency directly impacts quality and trade.
- India has untapped potential in Asian markets but requires strategic improvements.

SUGGESTION

Based on the findings of the study, several strategic recommendations are proposed to enhance the export competitiveness of Indian dairy products in Asian markets. These suggestions are aligned with the key factors identified in the analysis, including productivity, value addition, infrastructure, and regulatory compliance.

Firstly, improving productivity is essential for increasing competitiveness. The study highlights a significant productivity gap between India and leading dairy-exporting countries. Therefore, efforts should be made to promote high-yield dairy breeds, expand artificial insemination programs, and encourage scientific feeding practices. Strengthening veterinary healthcare services and farmer awareness programs can further contribute to higher milk yield and reduced production costs.

Secondly, there is a strong need to enhance value addition in the dairy sector. Currently, a large share of milk in India is consumed in liquid form, limiting export potential. Investment in dairy processing industries should be increased to promote the production of value-added products such as cheese, butter, milk powder, and dairy ingredients. Product diversification will not only improve export earnings but also help India compete in high-value international markets.

Thirdly, the development of cold chain infrastructure is crucial. Inadequate storage and transportation facilities lead to quality deterioration and wastage, affecting export readiness. Strengthening cold storage networks, refrigerated transport systems, and logistics infrastructure through public-private partnerships can significantly improve supply chain efficiency and product quality.

Further, ensuring compliance with international quality standards and sanitary and phytosanitary (SPS) regulations is necessary to access global markets. Establishing modern testing laboratories, implementing strict quality control mechanisms, and providing certification support to exporters will enhance credibility and acceptance of Indian dairy products abroad.

Additionally, improving supply chain efficiency and technological adoption is vital. The integration of digital technologies, automated systems, and traceability mechanisms can enhance transparency, reduce inefficiencies, and improve overall productivity. Encouraging the adoption of modern dairy management practices will help align Indian production systems with global standards.

Moreover, India should adopt export-oriented strategies by identifying high-potential Asian markets and developing targeted marketing approaches. Strengthening trade relations, promoting export clusters, and simplifying export procedures can facilitate market expansion.

Lastly, branding and marketing of Indian dairy products should be prioritized. Developing strong global brands and promoting traditional products such as ghee and paneer can create a unique identity in international markets. Government support in the form of subsidies, incentives, and policy reforms will further accelerate export growth.

In conclusion, a comprehensive approach focusing on productivity enhancement, value addition, infrastructure development, quality compliance, and strategic market positioning is essential for improving the global competitiveness of Indian dairy products.

FUTURE SCOPE OF THE STUDY

The present study provides a comprehensive analysis of the export competitiveness of Indian dairy products in Asian markets using secondary data. However, there remains considerable scope for further research to deepen and expand the findings.

Firstly, future studies can incorporate primary data collection through surveys and interviews with dairy farmers, exporters, cooperative managers, and industry experts. This would provide practical insights into ground-level challenges, operational issues, and real-time market dynamics that are not fully captured through secondary data.

Secondly, researchers can apply advanced econometric and statistical models, such as regression analysis, gravity models, and forecasting techniques, to quantify the impact of various factors influencing export competitiveness. This would enable more precise measurement of relationships between variables such as productivity, pricing, and trade performance.

Thirdly, there is scope to conduct product-level analysis of dairy exports, focusing on specific categories such as milk powder, cheese, butter, and ghee. This would help identify which products have the highest export potential and comparative advantage in different Asian markets.

Further, future research can expand the geographical scope by conducting country-specific or region-wise studies within Asia. Analyzing individual markets such as the UAE, Bangladesh, Malaysia, or Vietnam in detail would provide targeted strategies for market entry and expansion.

Additionally, comparative studies involving multiple dairy-exporting countries beyond the Netherlands, such as New Zealand, Australia, and the European Union, can offer broader insights into global best practices and competitive strategies.

There is also potential to explore the role of trade policies, free trade agreements (FTAs), tariff structures, and currency fluctuations in influencing dairy exports. Such analysis would provide a more comprehensive understanding of international trade dynamics.

Finally, future research can focus on sustainability and technological innovation in the dairy sector, including climate impact, digitalization, and precision dairy farming. These factors are becoming increasingly important for long-term competitiveness in global markets.

In conclusion, expanding the research through primary data, advanced analytical tools, and broader comparative frameworks can provide deeper insights and support more effective policy and strategic decision-making in the Indian dairy export sector.

CONCLUSION

The study concludes that although India is the largest producer of milk globally, its export performance in the dairy sector remains significantly low. This indicates a clear gap between production capacity and export competitiveness. The analysis reveals that factors such as low productivity, limited value addition, inadequate cold chain infrastructure, and non-compliance with international quality standards are major constraints affecting India's position in global dairy trade.

In contrast, leading dairy-exporting countries have achieved success through higher productivity, advanced processing, strong supply chain systems, and a focus on value-added products. The study highlights that export competitiveness is not determined solely by production volume but by efficiency, quality, and the ability to meet international market requirements.

Furthermore, Asian markets present substantial growth opportunities due to rising demand for dairy products. India has natural advantages such as geographical proximity and cost competitiveness; however, these advantages remain underutilized due to structural and institutional challenges.

The study emphasizes the need for a strategic shift from a production-oriented approach to a value-driven and export-focused model. Enhancing productivity, improving infrastructure, ensuring quality compliance, and promoting value-added products are essential steps for strengthening India's global competitiveness.

In conclusion, with appropriate policy support, technological advancement, and market-oriented strategies, India has strong potential to expand its presence in international dairy markets and emerge as a competitive global exporter.

REFERENCES

- Department of Animal Husbandry and Dairying. (2024). *Annual report 2023–24*. Government of India. https://dahd.nic.in
- European Commission. (2023). *EU agricultural outlook for dairy markets*. https://agriculture.ec.europa.eu
- Food and Agriculture Organization. (2024). *Dairy market review*. FAO. https://www.fao.org
- Joshi, R. M. (2020). India's dairy exports: Opportunities, challenges and strategies. *Journal of Agricultural Economics*, 75(2), 145–160. https://doi.org/10.1016/j.jae.2020.01.005
- Landes, M. (2021). *India's dairy sector: Structure, performance and prospects*. USDA ERS. https://www.ers.usda.gov
- National Dairy Development Board. (2023). *Indian dairy sector overview*. NDDB. https://www.nddb.coop
- OECD. (2023). *Agricultural policy monitoring and evaluation*. OECD Publishing. https://doi.org/10.1787/agr_pol-2023-en
- Rabobank. (2023). *Global dairy top 20 report*. Rabobank International. https://www.rabobank.com
- United Nations. (2024). *UN COMTRADE database*. https://comtrade.un.org
- United States Department of Agriculture. (2024). *Dairy and products annual—India*. USDA FAS. https://www.fas.usda.gov
- World Bank. (2023). *World development indicators*. https://data.worldbank.org