

An Early Assessment of The Impact of U.S. Tariff Measures on Kerala's Major Export Sectors

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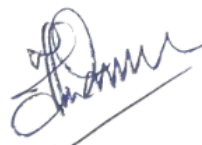
CERTIFICATE

This is to certify that the project titled "Early Assessment of Impact of Recent US tariff Measures on Kerala's Major Export Sectors" submitted in partial fulfillment of the requirement for the award of the degree of Bachelors of Arts in Economics to St. Teresa's College (Autonomous) (Affiliated to Mahatma Gandhi University, Kottayam) is a Bonafide record of the work done by the project group under my supervision and guidance.



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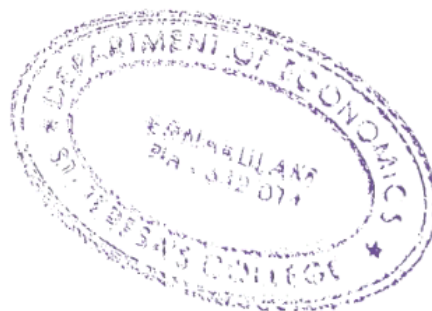


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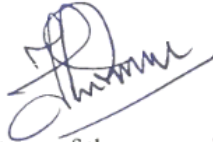
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DECLARATION

We hereby declare that the project "An Early Assessment of The Impact of U.S. Tariff Measures on Kerala's Major Export Sectors" submitted by us for the Bachelor of Arts Degree in Economics is our original work.



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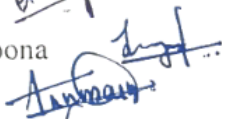
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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

Exports play an important role in a country's economy, contributing to income generation, employment, and overall economic development. In Kerala, there are specific industries which contribute more, like Fisheries, Spices, Coir and Coconut. They contribute to the State's economy as well as cultural identity. These industries are governed by the Ministry of Commerce and Industry along with specific bodies like the Spices Board, MPEDA, Coir Board and Coconut Development Board, promoting exports, regulation and sustainable growth. The United States is one of Kerala's top export destinations, often ranking among the top three countries. The US market has a high demand for Kerala's export products such as shrimp, spices, and coir or coconut-based products. While Kerala benefits from foreign exchange earnings and employment generation.

These industries are now facing one of the most significant external challenges in years: the imposition of high tariffs by the United States on Indian exports. The United States has imposed significant tariff hikes up to around 50 percent on Indian exports as part of recent trade policy changes. This includes anti-dumping, countervailing, and penalty tariffs that made Indian goods much more expensive in the U.S. market. This affected Marine products (especially shrimp), spices, tea, coir, cashew, and rubber, which are major export items from Kerala, are facing higher costs and reduced competitiveness. Other concerns include orders being cancelled or deferred, causing stocks to pile up in cold storages.

This project will comparatively analyse post-tariff export trends in these sectors as well as evaluate how it affected producers and traders, and assess the implications of current trade policies and international negotiations on Kerala's commerce with the United States.

1.2 REVIEW OF LITERATURE

Tariffs are among the most used instruments of protectionist trade policy. As national economies have become increasingly interconnected, tariffs have taken on greater importance not only in economic policy but also in geopolitics. Recent changes in global trade policy have therefore brought tariffs back into focus.

Much of the existing literature on tariffs and their effects is based on the United States, largely due to the availability of detailed data and the country's central role in global trade. While they are U.S.-focused, their findings are generally consistent with established trade theories and can be extended to other country contexts.

Accordingly, this review organises the literature into two broad areas: studies on U.S. tariffs and their effects on global trade, and research on U.S.– India trade and tariffs

1.2.1 US Tariffs and their effect on Global Trade

As the world's largest economy, the US trade policies have significant ripple effects across global trade. **(Furceri et al. 2018)** show empirically that tariffs have statistically significant negative effects on key macroeconomic variables in the country imposing the tariffs. Using impulse response functions from local projections on a panel of 151 countries over the period 1963-2014, the authors provide empirical support for arguments against protectionism. Similarly, **(Amiti, Redding, and Weinstein 2019)**, in the context of the first round of tariffs imposed during President Trump's first term, find that the welfare losses from tariffs are borne primarily by domestic consumers. Their results are consistent with predictions from standard partial-equilibrium demand and supply analysis. Focusing on short-run macroeconomic effects, **(Antonova et al. 2025)** address the question of short-run effects of an import tariff shock on domestic output and inflation using a multi-sector New-Keynesian model with an explicit input–output linkage. They find that the effect of tariffs propagates through input-output linkage and production networks, with downstream sectors facing higher input costs

and lower downstream output, while upstream sectors benefit from increased protection. They find that a uniform tariff does not produce uniform sectoral outcomes: responses depend on an industry's Domar weight and its position in the network. At the macro level, tariffs raise domestic prices and, when network effects are strong, can lead to stagflationary outcomes that complicate monetary policy. Consistent with these findings, **(Auclert, Rognlie, and Straub 2025)** also investigate the short-run effects of import tariffs. They find that tariffs are contractionary when intertemporal substitution and export substitution dominate import substitution. They also find that retaliation by other countries worsens the downturn and deteriorates the trade balance. Moving away from macroeconomic effects, **(Grossman, Helpman, and Redding 2024)** study the uniquely disruptive effect of tariffs on intermediate goods in light of the hefty increase in tariffs on intermediate goods by the Trump administration. The paper shows that unanticipated tariffs on intermediate goods disrupt global supply chains, alter bargaining dynamics, and usually reduce welfare, especially at high tariff levels. Small tariffs affect renegotiation, while large tariffs trigger relocation or reshoring, with complex welfare outcomes. Overall, the literature suggests that the negative effects of U.S. tariffs extend beyond aggregate outcomes and operate through sectoral and network linkages that amplify their impact.

1.2.2 US India Trade and Tariffs

As the United States is India's largest export destination, the impact of tariffs on US-India trade has been extensively studied recently. **(Idrisi et al. 2025)** mathematically model the interplay of Indian export volume, US tariff rates and competitiveness of Indian exporters over time. They find that tariffs destabilise Indian export growth, but it can be partially stabilised through policies that enhance Indian export competitiveness. Similarly, **(Mudoi and Tamuli 2025)** show that tariffs disrupted India's export competitiveness and prompted a re-evaluation of trade strategies in key sectors like steel, aluminium, textiles, and agricultural products. In

particular, labour-intensive and value-added manufactured goods, including textiles, automobile components, and processed agricultural goods, were affected. This period has also seen a shift in India's trade policy from the open-economy reforms of the 1990s toward increased protectionism under Make in India. **(Athukorala 2020)** suggests that this change in trade policy may have contributed to the US decision to impose retaliatory tariffs. The study also provides context for India's exclusion from the Generalised System of Preferences (GSP) by the Trump administration in 2018 and India's subsequent response. It argues that India's most effective response would be to liberalise its own restrictions and engage in negotiations with the US. Building on earlier evidence from **(Aggarwal 2004)** and **(Topalova and Khandelwal 2011)** on the benefits of trade liberalisation, this literature highlights how recent tariffs can disproportionately affect specific sectors, particularly labour-intensive and export-oriented industries.

While studies like **(Idrisi et al. 2025)** and **(Mudoi and Tamuli 2025)** primarily address national-level outcomes, Kerala's export economy is concentrated in many of these sensitive sectors, making it a relevant case study. However, peer-reviewed research specifically on Kerala's exports is scarce, highlighting the need for the present study.

1.3 RESEARCH PROBLEM

Recent U.S. tariffs on Indian exports have created challenges for export-dependent economies, but their effects at the state and sector level are not well explored. Kerala, with its concentration in labour-intensive and value-added export sectors, may be particularly affected. This study uses both quantitative trade data and qualitative insights from firms to examine how U.S. tariffs impact Kerala's major export sectors and the ways exporters respond. The findings aim to provide evidence that can help policymakers support the resilience and competitiveness of these sectors in the face of global trade shocks.

1.4 OBJECTIVES

1. Analyze the impact of recent U.S. tariffs on Kerala's key export sectors using quantitative trade data.
2. Examine sector-level variations in export performance in response to tariff shocks.
3. Explore strategies adopted by firms to mitigate the effects of U.S. tariffs through qualitative insights.

1.5 METHODOLOGY

The study uses both primary and secondary data.

Primary Data: Semi structured interviews were conducted to better understand the firm level response and experience of the tariff. Purposive sampling was employed to select the respondents so that firms that exported to US were selected.

Secondary Data :Monthly breakdown of the export value of each product exported from Kerala to US for the period of August to October in 2023 and 2024 was collected from DGCIS Data dissemination Portal

1.6 THEORETICAL FRAMEWORK

1.6.1 Heckscher-Ohlin Theory

The Heckscher-Ohlin (H-O) Theory states that countries export goods that use their abundant factors of production intensively and import goods that require their scarce factors. This theory is based on differences in factor endowments such as land, labour, capital, and natural resources. Kerala is considered a labour-abundant and resource-rich region, producing labour-intensive and resource-based goods like coir, seafood, spices, and rubber. Therefore, it naturally exports these products to countries like the United States, which is capital-abundant and imports labour-intensive goods. However, when the U.S. imposes tariffs on these items, the export competitiveness of

Kerala's goods declines. Tariffs raise the price of Kerala's products in the American market, reducing demand and adversely affecting industries that rely on abundant factors such as labour and natural resources. As a result, Kerala faces decreased export earnings, reduced employment in export-oriented sectors, and distortion of the natural trade pattern predicted by the H – O model.

1.6.2 Theory of Comparative Advantage

The theory of Comparative Advantage, introduced by David Ricardo, states that countries should specialize in producing and exporting goods for which they have the lowest opportunity cost. This means that even if a country is less efficient than another in producing all goods, it can still gain from trade by focusing on the goods it can produce relatively more efficiently. Kerala possesses a comparative advantage in products such as spices, marine goods, coir, and rubber because of its favourable climate, natural resources, and skilled labour base. Under free trade conditions, Kerala would export these goods to markets like the United States. However, when the U.S. imposes tariffs on these imports, the price of Kerala's products increases for American consumers, reducing demand. This prevents Kerala from fully benefiting from its comparative advantage and lowers export earnings. Ultimately, tariffs distort the natural flow of trade and reduce the mutual gains that both trading partners could have enjoyed.

1.6.3 Terms of Trade Theory

Terms of Trade (ToT) Theory measures the ratio of a country's export prices to its import prices and indicates how many imports a country can buy per unit of exports. For Kerala, which exports products like spices, seafood, coir, and rubber, U.S. tariffs can negatively affect its terms of trade by increasing the price of these goods in the American market and reducing demand. To remain competitive, Kerala exporters may have to lower prices or seek alternative markets, effectively receiving less for the same

quantity of exports. This deterioration in the terms of trade reduces export earnings, foreign exchange inflows, and the income of workers and producers in export-dependent sectors. The theory thus highlights how trade barriers in importing countries make international trade less favorable for exporters and can lead to economic inefficiency and welfare losses.

1.6.4 Price elasticity of Demand

Price Elasticity of Demand (PED) measures how sensitive the quantity demanded of a product is to changes in its price. It is calculated as the percentage change in quantity demanded divided by the percentage change in price. Products can be elastic (demand changes significantly with price) or inelastic (demand changes little with price). In the context of Kerala's exports, PED is crucial for understanding the impact of U.S. tariffs. When the U.S. imposes tariffs on goods like spices, seafood, or coir products, the price of these goods rises in the U.S. market. If the demand for these goods is elastic, even a small increase in price will lead to a large drop in quantity demanded, sharply reducing Kerala's export revenue. For example, processed seafood or packaged spices may face elastic demand because American buyers can switch to other suppliers or substitutes. Conversely, products with inelastic demand, such as specialty spices with unique qualities (e.g., Kerala black pepper), may experience only a small fall in demand, allowing exporters to pass on some of the tariff cost without a large loss in volume. Understanding PED helps Kerala exporters anticipate revenue losses and adjust pricing or explore alternative markets.

1.7 LIMITATION

- Companies were reluctant to share detailed export data due to concerns about their trade strategies.
- Some of the information provided by firms is based on estimates rather than actual figures.

- Sector-level data had to be purchased, as companies do not publicly disclose sensitive information.
- The analysis is based on a preliminary three-month dataset, offering an early view but requiring longer-term study for stronger conclusions.
- Data collection was time-consuming because many firms were not fully cooperative.

CHAPTER 2

HISTORY AND OVERVIEW OF KERALA'S **SELECTED EXPORT SECTORS**

2.1 HISTORICAL EVOLUTION OF KERALA' S EXPORT COMMODITIES AND TRADE INSTITUTIONS

The development of Kerala' s export economy is closely linked to its long history of trade with the external world. From ancient times, Kerala was connected to international trade routes through the Malabar Coast, which linked the region with Rome, Arabia, and Southeast Asia. As a result, Kerala gained global recognition for commodities such as spices, marine products, and natural fibres. Trade was not only an economic activity but also played a significant role in shaping Kerala' s culture and social structure. Early trade contacts helped create a strong trading tradition in the region, leading to the growth of merchants, ports, and coastal settlements over time.

During the colonial period, export activities expanded in scale but lacked adequate institutional support for local producers. Following independence, the establishment of the Ministry of Commerce and Industry marked an important step toward formulating trade policy and promoting exports, laying the foundation for more organized export development.

2.1.1 Early Trade and Colonial Influence

Under colonial rule, Kerala' s exports became more deeply integrated into international markets controlled by European powers. Spices such as pepper and cardamom gained high value in global markets, while coir and coconut products became popular due to their strength, durability, and wide range of uses. Fisheries, which were earlier limited mainly to local consumption, gradually began to move towards export markets with the introduction of better preservation methods and improved transport facilities.

However, colonial trade largely served foreign commercial interests. Local producers had very little institutional support or bargaining power, and export activities were

poorly organized from the producers' side. In the absence of structured export promotion mechanisms, trade benefits were unevenly distributed. Farmers, fishers, and small producers often suffered from price fluctuations, market exploitation, and unstable incomes.

2.1.2 Post-Independence Trade Policy and Institutional Framework

After independence, India's approach to trade and exports changed significantly. The government recognized the importance of exports for economic growth and foreign exchange earnings. As a result, the Ministry of Commerce and Industry was established to frame trade policies, promote exports, and manage international trade relations. This marked the beginning of planned and institutionalized export development in India.

To address the specific needs of different export sectors, several commodity-based institutions were created. These boards played an important role in organizing production, improving quality, and supporting exporters. Kerala, with its strong base in agro-based and marine products, benefited greatly from these institutional developments. Key institutions include the following.

The **Spices Board of India** was formed through the merger of earlier spice-related bodies such as the Cardamom Board and the Pepper Board. Spices have historically been central to Kerala's economy, dating back to its role as a major hub in the global spice trade. The establishment of the Spices Board marked a shift toward institutional support for export promotion, quality control, and scientific research. Through grading, certification, and market promotion measures, the Board strengthened India's presence in global spice markets. As a leading spice-producing state, Kerala benefited significantly from these initiatives.

The **Marine Products Export Development Authority (MPEDA)** was established when India sought to systematically develop marine exports and earn foreign exchange

through fisheries. Traditionally, Kerala's fisheries sector was largely subsistence-based, with small-scale fishing practices along the coast. MPEDA introduced institutional structure by promoting modernization, export-oriented processing, and international quality standards. The Authority played a key role in developing cold storage facilities, hygienic processing units, and export certification systems. With the expansion of aquaculture, especially shrimp farming, Kerala emerged as a major exporter of marine products, making fisheries one of the state's most important sources of export revenue.

The **Coir Board** was established to support and regulate one of Kerala's oldest traditional industries, rooted in rural and coastal communities. Historically, coir production was a household-based activity that provided supplementary income, particularly for women workers. With rising global competition and the emergence of synthetic substitutes, the industry faced serious challenges. The Coir Board addressed these issues through modernization, mechanization, and product diversification. Training programmes, technology adoption, and export promotion helped transform coir into value-added products such as mats and geo-textiles, ensuring continued global relevance and sustaining rural employment.

Similarly, the **Coconut Development Board** was created to strengthen coconut cultivation and promote the processing and export of coconut-based products. Traditionally focused on domestic consumption, coconut farming in Kerala gradually shifted toward export-oriented production due to changing global preferences and growing demand for natural and health-based products. The Board supported productivity improvements, scientific farming practices, and processing infrastructure. Products such as virgin coconut oil, desiccated coconut, coconut milk powder, and coconut fibre gained international recognition, enhancing Kerala's export profile and contributing to agricultural diversification.

2.1.3 Liberalization and Global Integration

Economic liberalization in the 1990s marked a major turning point in Kerala's export history. Trade restrictions were reduced, export incentives were expanded, and Indian exporters gained better access to international markets. During this period, exports from Kerala to the United States increased steadily, driven by rising demand for shrimp, spices, and environmentally friendly products such as coir.

Advances in technology, improved cold storage facilities, stronger quality certification systems, and deeper integration into global supply chains enhanced Kerala's competitiveness. Exporters increasingly complied with international sanitary, phytosanitary, and sustainability standards, particularly to meet U.S. and European market requirements.

2.1.4 Emergence of Trade Barriers and Tariff Challenges

Despite these developments, the twenty-first century has witnessed growing uncertainty in global trade. Developed countries, particularly the United States, have increasingly relied on tariffs, anti-dumping duties, and countervailing measures. These policy shifts have altered the external trade environment, and Kerala's export sectors which are highly dependent on price-sensitive markets have been especially affected.

2.2 INDIA-U.S TRADE RELATIONS

India and the United States share one of the most significant and dynamic bilateral trade relationships in the world. Over the past decade, the United States has grown to become India's largest export destination, reflecting deep economic interdependence. In fiscal year 2025, bilateral trade in goods and services was estimated at over USD 212 billion, underscoring the strategic and economic importance of this partnership for both countries.

The United States matters to India chiefly as a market for Indian goods and services, absorbing a wide array of products ranging from high-technology items to traditional commodities. India's exports to the U.S. have grown steadily, reaching about USD 86.

5 billion in the 2024– 25 period, with robust demand for electrical machinery, gems and jewellery, pharmaceuticals, and other manufactured goods. In turn, India is a significant source market for the U.S., importing machinery, mineral fuels, aerospace components, advanced technology goods, and other high-value items.

Historically, the U.S. market has been especially important for high-value and value-added goods. Engineering and electrical goods, pharmaceuticals, and IT-enabled services constitute some of the largest components of Indian exports to the United States. Although core Kerala export sectors such as spices, seafood, coconut, and coir products may be smaller in absolute terms compared to pharmaceuticals or machinery, the U.S. remains a key destination due to its large consumer base, high purchasing power, and demand for quality-certified products.

For Kerala's traditional exports, the U.S. plays a dual role. On the one hand, its demand for premium spices and marine products has historically supported higher export earnings and incentivized improvements in quality and processing standards. On the other hand, recent escalation of tariffs on imports from India has underscored the vulnerability of Kerala's export sectors to policy changes in major markets. Higher duties on price-sensitive goods such as seafood and spices have the potential to reduce competitiveness relative to suppliers in other regions.

From the U.S. perspective, India represents not only a large emerging market for goods but also an important partner in services, technology, and supply chains. The U.S. exports capital goods, machinery, and high-end technology components to India, supporting Indian industrial modernization and infrastructure development. Additionally, the services trade between the two countries is substantial, with India exporting significant amounts of IT and business services to the U.S., complementing goods trade and deepening economic engagement.

Despite periodic trade tensions and tariff disputes, the bilateral trade relationship has historically provided mutual benefits. For India, access to the U.S. market is vital for sustaining export growth across both traditional and modern sectors. For the United States, India is an expanding destination for goods and services that support American industries and consumers. Together, the economic relationship combines market access, investment linkages, and strategic cooperation, making it a cornerstone of both countries' trade and economic agendas.

2.2.1 Timeline Of US Tariff Measures On Indian Exports

Recent tariff increases imposed by the United States on Indian exports represent a clear departure from earlier liberal trade relations. These measures have disrupted established export patterns, reduced the competitiveness of Kerala's products, and compelled exporters and producers to rethink their market strategies. Overall, this reflects a transition from a phase of steady export growth to a more challenging and regulated global trade environment.

Table 2.1 Timeline of U.S. Tariff Measures Affecting Indian Exports

Date	Policy Event	Remarks / Relevance to Kerala's Export Sectors
Feb 11, 2025	Section 232 Tariff Order	Imposed a 25% tariff on steel and aluminium imports (effective March 12, 2025). While sector-specific, it signalled a broader shift toward trade protectionism.
Apr 2, 2025	Universal and Reciprocal Tariff Announcement	The U.S. announced a 10% universal baseline tariff and higher country-specific reciprocal tariffs, with India facing a proposed rate of about 26%.
Apr 5, 2025	Baseline Tariff Implementation	The 10% baseline tariff came into effect for most non-exempt goods, raising landed costs for Indian exports.
Apr 9, 2025	Suspension of Reciprocal Tariff (India)	The reciprocal tariff on India was suspended for 90 days to allow negotiations, creating uncertainty for exporters.
July 30, 2025	Energy-Linked Trade Measure Announcement	The U.S. announced additional tariff measures linked to India's continued imports of Russian crude oil.
Aug 7, 2025	Reciprocal Tariff Implementation (India)	The higher reciprocal tariff replaced the baseline rate for Indian exports, affecting price competitiveness in the U.S. market.
Aug 27, 2025	Cumulative Tariff Escalation	Combined tariff measures raised effective duties on many Indian exports to around 50%, severely impacting price-sensitive sectors.
Nov 14, 2025	Agricultural Product Exemptions	Exemptions announced for selected agricultural and food products, including spices and coconut-based products.
Jan 24, 2026	Indication of Tariff De-escalation	U.S. officials signalled the possibility of rolling back additional tariffs, easing uncertainty for exporters.

Source: Compiled from official releases from the Office of the United States Trade Representative (USTR).

2.3 PRESENT TRADE CONDITIONS AND STRUCTURAL CHALLENGES

At present, Kerala's export sectors operate in a challenging global trade environment shaped by protectionism, geopolitical tensions, and supply chain changes. Heavy dependence on a limited number of commodities and markets increases vulnerability to external shocks such as tariff hikes. The dominance of small producers and informal labour further intensifies the economic impact.

Understanding this historical and institutional background is essential for analysing post-tariff export performance. It helps explain how trade policies affect regional economies and how Kerala's traditional export sectors can adapt to an increasingly restrictive global trade environment.

2.4 ROLE AND FUNCTIONS OF COMMODITY BOARDS IN EXPORT GOVERNANCE

Kerala's export performance is strongly influenced by the effectiveness of its institutional support system. Commodity boards act as a link between producers, exporters, and international markets. Their main functions include:

- Promotion of exports and development of new markets.
- Ensuring quality control and certification.
- Providing research and technological support.
- Training and skill development for producers and workers.
- Ensuring compliance with international trade standards
- Supporting sustainability and product traceability

With the rise in tariff barriers and trade restrictions, the role of these institutions has become even more important. They help exporters diversify markets, explore alternative destinations, and adjust to changing international trade rules.

2.5 A SECTORAL OVERVIEW OF COIR, SEAFOOD, COCONUT AND SPICES

Kerala is one of India's most export-oriented states, with a strong dependence on agro-based and primary product exports. The state's unique geographical features, including a long coastline, fertile soil, tropical climate, and abundant natural resources, have played a crucial role in shaping its export structure. These advantages have enabled Kerala to develop globally competitive industries in sectors such as seafood, spices, coir, and coconut-based products. Historically, these sectors have not only contributed significantly to export earnings but have also supported livelihoods in coastal, rural, and plantation regions of the state. Given the importance of exports to Kerala's economy, changes in external trade policies can have far-reaching implications for the state.

Among Kerala's major international markets, the United States occupies a prominent position, particularly for high-value and value-added products. The U.S. market is especially important due to its large consumer base, higher purchasing power, and demand for processed, certified, and quality-assured products. However, in recent years, changes in U.S. trade policy, especially the imposition of higher tariffs and trade-remedial measures on selected imports from developing countries, have posed serious challenges for Indian exporters. Although tariff decisions are taken at the national level, their impact is uneven across states depending on the composition and nature of exports.

Kerala, with its concentration in price-sensitive and primary product exports, is especially vulnerable to such policy changes. The state's export sectors largely consist of small and medium enterprises, cooperatives, and informal production units, which have limited capacity to absorb sudden cost increases. Against this background, the present study provides an analysis of the short-run impact of U.S.

tariffs on four key export sectors of Kerala namely, coir, seafood, coconut, and spices, highlighting their economic, social, and developmental implications.

In this context, an understanding of the nature and scope of U.S. tariff measures is essential to assess their implications for Kerala's export sectors.

2.5.1 Nature of U.S. Tariffs and Their Relevance to Kerala

U.S. tariffs affecting Indian exports include basic customs duties, anti-dumping duties, countervailing duties, and various non-tariff barriers related to quality, safety, labour, and sustainability standards. These measures significantly increase the landed cost of products in the U.S. market and reduce their price competitiveness. For Kerala's export sectors, which face intense competition from countries such as Vietnam, Indonesia, Thailand, and Sri Lanka, even moderate tariff increases can lead to a substantial loss of market share.

In addition to direct price effects, frequent changes in tariff policies create uncertainty for exporters. This discourages long-term contracts, investment in capacity expansion, and technological upgrading. Small and medium enterprises, which dominate Kerala's export landscape, are particularly affected due to limited financial resilience, restricted access to credit, and high dependence on external markets. As a result, the impact of U.S. tariffs is not confined to export earnings alone but extends to employment, income stability, and regional development.

2.5.2 Sector-wise Impact of U.S. Tariffs on Kerala Exports

I Seafood Exports

The seafood sector is one of the most important contributors to Kerala's export earnings and forms the backbone of the state's coastal economy. Kerala exports a wide range of marine products, including frozen shrimp, fish, squid, cuttlefish, and other value-added seafood products, with the United States being a major destination.

However, U.S. anti-dumping duties on shrimp and higher import tariffs have significantly affected this sector.

Higher tariffs increase the final price of Kerala's seafood products in the U.S. market, leading to reduced demand, order cancellations, and lower export volumes. Exporters often find it difficult to pass on these increased costs to consumers due to intense international competition. As a result, profit margins decline sharply. Many seafood processing units are forced to operate below capacity, while unsold stocks accumulate in cold storage facilities, increasing operational costs.

The impact extends beyond exporters to fishermen, aquaculture farmers, transport workers, and processing employees. Since the seafood industry is labour-intensive and employs a large number of women, especially in processing and peeling units, tariff-induced export declines have serious social and employment consequences. Reduced working days, wage losses, and job insecurity have become common in several coastal regions of Kerala, affecting household incomes and community well-being.

II Spices Exports

Kerala is globally renowned for its spices such as black pepper, cardamom, ginger, nutmeg, and various spice oils and extracts. These products have historically played a major role in Kerala's trade relations with international markets. The United States represents a premium market for high-quality Indian spices, particularly those meeting stringent quality and safety standards.

However, higher tariffs combined with strict quality regulations have reduced the competitiveness of Kerala's spice exports. As tariffs raise prices in the U.S. market, importers increasingly shift to alternative suppliers offering similar products at lower costs. This shift results in reduced export demand, lower export earnings, and increased volatility in domestic spice prices. Small farmers and traders are particularly

affected, as they face declining farm-gate prices, rising production costs, and income uncertainty. The burden of meeting certification and compliance requirements further adds to the challenges faced by the sector.

III Coir and Coir Products

The coir industry is a traditional and employment-intensive sector in Kerala, deeply rooted in rural and coastal communities. Kerala produces coir fibre, yarn, mats, mattings, geo-textiles, and a variety of value-added coir products. The United States is one of the largest markets for coir-based products, especially due to growing demand for eco-friendly and sustainable alternatives.

However, higher U.S. tariffs have reduced the price competitiveness of Kerala's coir products, particularly when compared to substitutes from other countries. Exporters face declining orders, while rising compliance costs related to quality standards, environmental regulations, and sustainability certifications further increase production expenses. Since the coir industry employs a large number of women workers, reduced export demand directly affects employment and income security. Small-scale producers, cooperatives, and traditional units are especially vulnerable to prolonged tariff pressures.

IV Coconut and Coconut-based Products

Kerala is a leading producer of coconuts and coconut-based products such as coconut oil, desiccated coconut, coconut milk powder, virgin coconut oil, and activated carbon. Demand for these products in the U.S. market has increased in recent years due to growing health consciousness and preference for natural and plant-based products.

Despite this favourable demand trend, higher tariffs and regulatory requirements have constrained export growth, limiting the sector's ability to fully benefit from expanding

international markets. Tariff-induced cost increases reduce the competitiveness of Kerala's coconut products, particularly value-added and processed items. Exporters face difficulties in maintaining profit margins while meeting stringent quality, packaging, and labelling standards. Since coconut cultivation in Kerala is dominated by small and marginal farmers, reduced export opportunities quickly translate into income instability and higher market risks, affecting the broader agricultural economy of the state.

2.5.3 Economic and Developmental Implications

The cumulative impact of U.S. tariffs on seafood, spices, coir, and coconut sectors has resulted in a decline in Kerala's export earnings and foreign exchange inflows. Export-oriented units experience financial stress, while employment losses and reduced working days in processing and agro-based industries worsen income insecurity. Vulnerable groups, especially women workers and small producers, are disproportionately affected. At the state level, weaker export performance slows industrial growth and affects regions heavily dependent on export-oriented activities, particularly coastal and rural areas.

2.5.4 Conclusion

In conclusion, by increasing costs and reducing competitiveness, U.S. tariffs have adversely affected export volumes, employment, and income stability in Kerala's key export sectors. Coastal and rural regions have been particularly impacted due to their dependence on these industries. While diversification, value addition, and quality enhancement offer potential pathways for resilience, Kerala's experience clearly highlights the vulnerability of export-dependent sectors to external trade policies. A balanced strategy combining market diversification, technological upgrading, and supportive state and national policies is essential to ensure sustainable, inclusive, and export-led growth in the face of evolving global trade dynamics.

CHAPTER 3
ANALYSIS OF TRADE DATA AND EXPORTER
RESPONSES

3.1 INTRODUCTION

This section examines short-run changes in Kerala’ s exports to the US across four selected sectors using monthly data for August– October 2024 and 2025. The analysis highlights sector-specific responses following the introduction of recent US tariff measures.

3.2 SECTORWISE ANALYSIS

3.2.1 FISHERIES

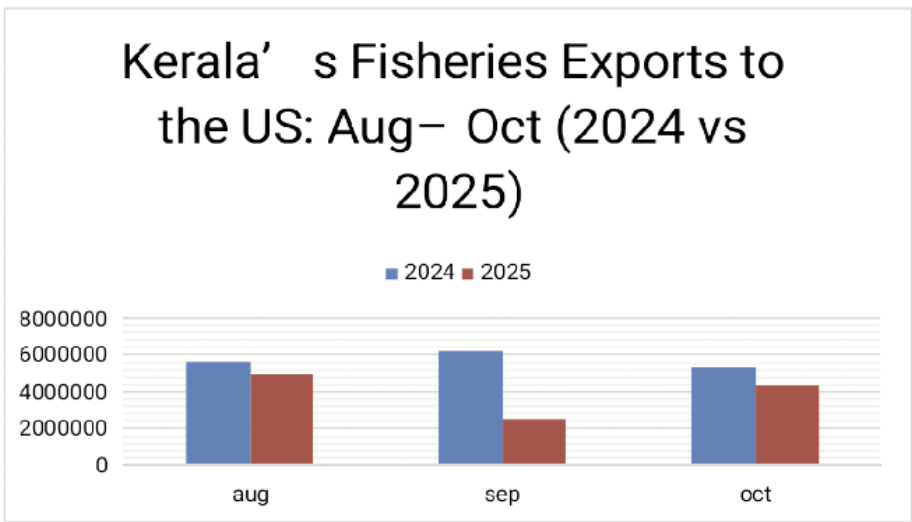


Figure 3.1. Monthly exports of fisheries sector from Kerala to the United States, August– October 2024 and 2025 (US\$)
Source: Directorate General of Commercial intelligence and Statistics (DGCIS).

Fisheries exports to the US display a pronounced year-on-year decline during the August– October period in 2025 when compared to 2024. While exports in August 2025 are moderately lower than the corresponding month in 2024, a sharp contraction is observed in September 2025, indicating a substantial short-run disruption following the tariff measures. Although exports show partial recovery in October 2025, levels remain below those recorded in October 2024. This pattern suggests that fisheries exports were particularly sensitive in the immediate post-tariff period, possibly reflecting order deferments and price renegotiations rather than a sustained collapse in export capacity.

3.2.2 SPICES

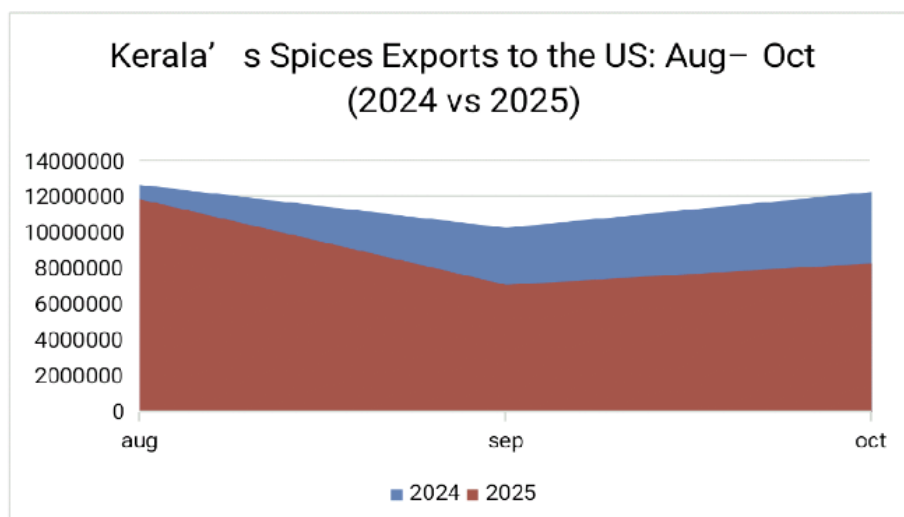


Figure 3.2 Monthly exports of Spices sector from Kerala to the United States, August– October 2024 and 2025 (US\$)
Source: Directorate General of Commercial intelligence and Statistics (DGCIIS).

Spices exports exhibit a consistent decline across all three months in 2025 relative to 2024. Unlike fisheries, the contraction in spices exports is less abrupt but more persistent, with export values in September and October 2025 remaining significantly below their 2024 counterparts. The absence of a visible recovery by October suggests a slower adjustment process, potentially due to longer contract cycles and inventory-based trade in spices. Overall, the evidence points to a sustained but moderate short-term impact on spices exports following the tariff announcement.

3.2.3 COCONUT

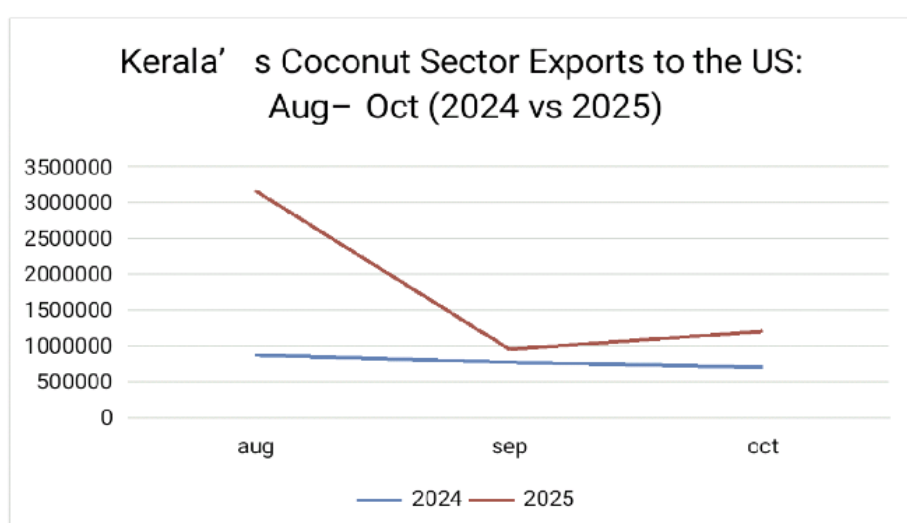


Figure 3.3 Monthly exports of Coconut sector from Kerala to the United States, August- October 2024 and 2025 (US\$)
Source: Directorate General of Commercial Intelligence and Statistics (DGCIIS).

In contrast to other sectors, coconut exports record a notable increase in 2025 across all three months when compared with 2024. The rise is particularly pronounced in August 2025 and remains positive through September and October. This surge in August might have been due to shipments made before the effect of tariffs hit. This divergent trend suggests that coconut exports were relatively resilient during the post-tariff period. Such resilience may reflect product-specific demand and conditions,

niche market positioning, or prior contractual arrangements, indicating that the impact of tariffs was not uniform across agricultural export sectors.

3.2.4 COIR

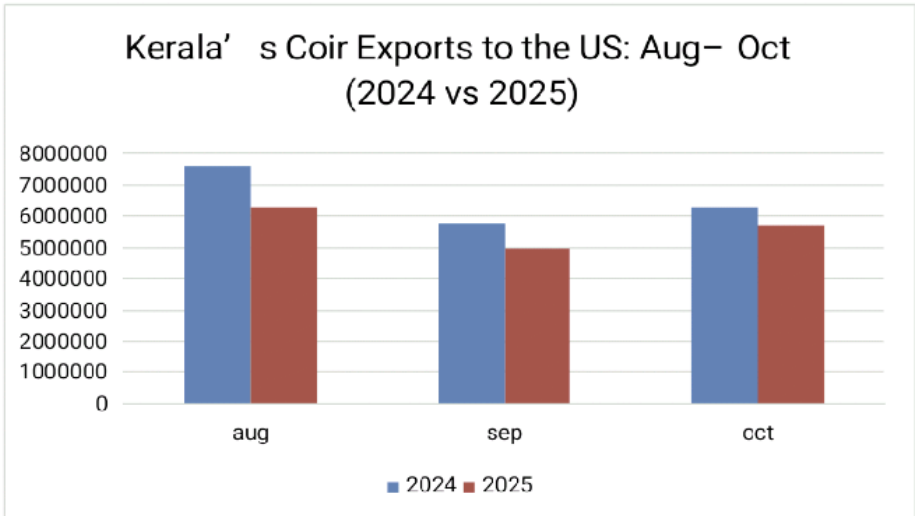


Figure 3.4 Monthly exports of Coir sector from Kerala to the United States, August– October 2024 and 2025 (US\$)
Source: Directorate General of Commercial Intelligence and Statistics (DGCIS).

Coir exports show a modest year-on-year decline in 2025 relative to 2024, with the largest difference observed in August. However, the magnitude of decline narrows in September and October, indicating signs of stabilization over time. Compared to

fisheries and spices, coir exports appear less volatile, suggesting a relatively higher capacity to absorb short-run trade shocks. This pattern may be indicative of partial price adjustments or diversified demand structures in the coir sector.

3.3 CROSS SECTOR ANALYSIS

A comparison of monthly export values reveals substantial sectoral heterogeneity in the short-run response to the 2025 tariff measures. Fisheries exports exhibit the sharpest contraction, particularly in September 2025, where exports declined by nearly 60 percent relative to the previous year, indicating high sensitivity to trade policy shocks. Spices also record consistent year-on-year declines across all three months, though the magnitude is more moderate and persistent rather than abrupt. In contrast, coconut exports display a marked increase in 2025, suggesting relative resilience and possible product-specific insulation from tariff effects. Coir exports experience a modest decline but show signs of stabilization by October 2025. Overall, the evidence points to an immediate disruption following the tariff announcement, with varying degrees of adjustment across sectors.

3.4 EXPORTER RESPONSES

This analysis provides company-wise assessment of the early impact of U.S. trade policy changes on selected Kerala sectors. The responses highlight how firms adjusted to changes in costs, orders, and market access in the short run. These insights are illustrative and support the interpretation of the quantitative export trends

3.4.1 Exporter Profile and their Response to Tariffs

To ensure confidentiality, the interviewed exporters are anonymised and referred to as Company A, Company B, Company C, and so on.

I. Seafood Sector

COMPANY A

Company A has been operating for nearly 20 years and specializes in shrimp, cuttlefish, and squid exports. Prior to tariff imposition, approximately 80 percent of the firm's export quantity was destined for the U.S. market. Shrimp exports, particularly small-size shrimp, formed the core of shipments, with Kerala being a dominant supplier in this segment.

The introduction of U.S. tariffs resulted in immediate order cancellations and postponements. Quantity-wise, exports to the U.S. declined sharply, though exact percentages varied by product category. They report that exporters were required to provide export bonds, which blocked substantial amounts of working capital. This restriction limited the firm's ability to finance procurement and processing of large export quantities.

Despite high global demand for shrimp due to limited suppliers, liquidity constraints reduced shipment volumes. A portion of exports was redirected to European markets; however, margins were lower and documentation requirements were stricter. Trust issues also emerged, as U.S. buyers hesitated to resume imports even when demand conditions improved. The firm's experience highlights the interaction between quantity restrictions, financial constraints, and buyer confidence.

COMPANY B

Company B deals primarily in squid and octopus and has six to seven years of experience in exporting to the U.S. market. Prior to tariff implementation, the firm exported between 30 and 50 containers per month. Each container carried approximately 20,000 kilograms of product. In several shipment cycles, four containers were exported together. The average export price of squid was approximately USD 4 per pound, while certain categories were priced around USD 3.5 per pound.

After tariffs were imposed, the firm experienced a sharp reduction in container movements. Several containers scheduled for shipment were cancelled or deferred. Quantity-wise, monthly exports declined significantly, leading to underutilization of processing capacity. Approximately 70 percent of the remaining export quantity was redirected to European markets, while the share of U.S. exports fell drastically.

Financial constraints intensified due to blocked capital in the form of export bonds and delayed payments. Although demand existed in principle, higher prices and uncertainty reduced effective demand. Government support measures such as interest subvention of 2-3 percent, working capital loans, and bill discounting extensions of up to one year provided temporary relief. However, export quantities did not return to pre-tariff levels, reflecting persistent structural challenges.

II. Spices sector

COMPANY C

Company C is engaged in the export of a wide range of spice products including pepper, cumin, turmeric, cardamom, nutmeg, cassia, and dehydrated onion products. Prior to the imposition of U.S. tariffs, approximately 75 percent of the firm's total export quantity was shipped to the United States. Pepper constituted the largest share of exports in both quantity and value terms. Monthly shipments to the U.S. were stable before the tariff period, supported by long-term contracts and predictable pricing.

Following the introduction of U.S. tariffs of up to 50 percent on Indian spices, the landed price of pepper and other spices increased sharply. Quantity-wise, the firm recorded an approximate 30 percent decline in exports to the U.S. market. They reported that buyers refrained from placing new orders due to uncertainty regarding final import costs and tariff continuation.

The loss of U.S. demand was compounded by increased competition from Vietnam and Brazil, which faced significantly lower tariff rates of around 20 percent and 5

percent respectively. As a result, U.S. buyers substituted Indian spices with alternative origins. Although Company C attempted to divert a portion of exports to European and other markets, the quantity absorbed was limited and margins were lower. The firm also incurred additional costs related to renegotiation of contracts, customs compliance, and value-added tax complications. Overall, both quantity and value of exports declined, highlighting the severe impact of tariff-induced price escalation.

They also note that since there is a niche demand for Indian spices in the US market, the market prices for spices have risen in the US. This pressurized the administration to rethink the tariffs. So they remain optimistic that the tariffs are temporary and they will regain market share once they are rolled back.

COMPANY D

Company D operates a modern onion dehydration and spice processing facility with a total processing capacity of approximately 4,000 tonnes of ingredients per year. The facility processes pepper, cumin, turmeric, nutmeg, cassia, and dehydrated onion products. Prior to the tariff episode, a significant share of processed output was exported to the U.S., alongside shipments to the UK, Netherlands, South Africa, and Vietnam.

U.S. demand for pepper declined by approximately 30 percent after tariff implementation. This decline directly affected capacity utilisation at the processing plant, as export-oriented production schedules had to be revised. Importers paused procurement activities, leading to temporary inventory accumulation. Quantity-wise, shipments to the U.S. were reduced and reallocated to European markets wherever possible.

The firm's electricity-based processing system, reduced carbon footprint, and near-zero water discharge facility provided a competitive advantage in sustainability-conscious markets. While U.S. export quantities declined, European

markets absorbed a portion of the output, preventing a complete collapse in production volumes. The executive order issued on November 13, 2025, exempting spices not grown in the U.S., was noted as a crucial policy intervention expected to restore export quantities gradually. Company D' s case demonstrates how processing capacity, technology, and sustainability influence quantity adjustment across markets.

III. Coconut

COMPANY E

Company E is a Kerala-based export firm engaged in the international trade of perishable and high-value products. Its export portfolio includes fresh fruits and vegetables, coconuts, bananas, spices, and selected marine products. The company has been operating in export trade for several years and relies heavily on temperature-controlled logistics, using refrigerated containers and air cargo to ensure product quality and freshness.

The firm' s export operations are primarily oriented toward the Middle East, particularly the United Arab Emirates and Kuwait, as well as selected Southeast Asian markets such as Vietnam. This market orientation has limited the firm' s exposure to trade policy changes in the United States.

The U.S. tariff increases during 2025– 2026 had no significant direct impact on Company E' s export volumes or revenues. The firm' s marine exports to the U.S. accounted for less than five percent of total exports, and this share did not change materially after the imposition of tariffs. As a result, the company did not experience major order cancellations or production disruptions linked to U.S. trade measures.

However, the firm reported a decline in price competitiveness for any potential U.S.-bound marine exports. Tariffs made Indian marine products such as white pomfret and hamour less attractive compared to suppliers from countries benefiting from more favourable trade arrangements. Although actual losses were negligible due to limited exposure, the estimated cost impact for U.S.-directed shipments was reported to be in the range of 8– 15 percent, depending on the product category.

Company E responded to the evolving trade environment by reinforcing its focus on Middle Eastern and other non-U.S. markets, strengthening buyer relationships, diversifying products, and improving logistics efficiency and cost control. The firm also indicated that the tariff episode led to a strategic decision to prioritise market diversification and reduce reliance on any single destination. While no direct employment effects were reported, the experience reinforced the importance of compliance readiness, flexible logistics systems, and diversified export markets in managing trade policy uncertainty.

IV. Coir

COMPANY F

Company F experienced serious difficulties following the imposition of a 50 percent tariff on exports to the United States. In anticipation that the tariff regime might change, the firm increased its production of goods meant for the U.S. market. However, when the tariff structure remained unchanged, this decision resulted in substantial financial losses. The firm received export orders only four days before the tariff implementation, and even during this short window, it could secure only a 25 percent discount while exporting its products.

After the tariff came into effect, U.S. buyers significantly reduced or completely stopped placing orders due to higher prices and increased risk. According to Company

F, its products have now lost their market relevance in the U.S., with extreme price fluctuations making trade highly uncertain. This situation discouraged long-term contracts and weakened buyer confidence. As a result, the firm faced excess inventory, working capital blockage, and rising storage costs.

To reduce further losses, Company F decided to shift away from the U.S. market and focus on alternative products and destinations. At present, the firm exports exclusively to European markets, where trade conditions are relatively stable and tariff barriers are lower. Although this shift has helped maintain business continuity, profit margins remain under pressure, highlighting the long-term impact of tariff-driven trade disruptions on export-oriented firms.

COMPANY G

Company G operates in export-oriented sectors that traditionally show strong growth potential. However, following the imposition of U.S. tariffs, the firm reported that nearly 40 percent of its aggregate business was affected. Although export margins declined after the tariff exposure, overall profitability did not collapse entirely, as the firm was exporting only limited quantities to the U.S. market

Despite this, the situation remains uncertain. There is growing concern that tariffs could rise to as high as 500 percent in the future, which would be disastrous for producers across sectors. Due to this risk, Company G decided to freeze exports to the U.S. and redirect shipments to alternative markets such as China, the United Kingdom, and the Netherlands. The firm observed that high-priced products exported to Korea were more affected, while other sectors like fish, spices, and rubber faced both volume-based and cost-based losses.

A major challenge has been product rejection in the U.S. market. Since production is order-based and volumes are often increased by 10– 20 percent for future demand,

miscalculations led to excess stock and warehouse accumulation. Although losses were lower than those in cotton and textile industries, the impact remains significant.

3.4.1 Analysis of Exporter Responses

A detailed comparison of quantity-wise and value-wise export performance across the firms reveals clear sectoral asymmetries in the impact of U.S. trade policy. In the spices sector, both Company C and Company D experienced an approximate 30 percent decline in export quantities to the U.S. market. This decline was not uniform across all products; pepper exports showed the steepest fall due to high price sensitivity and intense competition from alternative suppliers.

In the marine sector, the impact was even more pronounced in operational terms. Company A and Company B faced not only reduced demand but also severe constraints on shipment volumes due to export bond requirements. They reported that their container-wise data indicate a substantial fall in monthly shipments, particularly for Company B, where pre-tariff exports of 30– 50 containers per month declined sharply. Although global demand for shrimp, squid, and octopus remained strong, effective demand fell due to higher prices, uncertainty, and liquidity constraints. The redirection of exports to European markets mitigated quantity losses to some extent but resulted in lower unit values.

By contrast, coconut and coir exporters such as Company E, Company F, and Company G exhibited relative stability in export quantities. Their limited dependence on the U.S. market insulated them from direct tariff shocks. However, value realization per unit declined due to increased logistics costs, cautious buyer behavior, and intensified competition. This divergence highlights the role of market concentration and product perishability in shaping export vulnerability.

Firm-Level Adjustment Mechanisms and Strategic Behaviour

Firm-level responses varied significantly depending on scale, product type, and technological capability. Spice exporters attempted to rebalance market portfolios by increasing shipments to Europe, the UK, South Africa, and Vietnam. Company D, in particular, leveraged its processing capacity and sustainability credentials to access environmentally conscious markets. The ability to reallocate quantities across destinations played a critical role in preventing complete production shutdowns.

Marine exporters adopted adjustment strategies focused on survival rather than expansion. The diversion of approximately 70 percent of exports to European markets, as recorded for Company B, reflects a defensive response aimed at maintaining cash flow. However, differences in product specifications, regulatory requirements, and pricing structures limited the effectiveness of this strategy. Export bond requirements further constrained flexibility, reducing firms' capacity to scale shipments even when demand existed.

Coconut and coir exporters emphasized diversification and product positioning. Organic certification, eco-friendly branding, and long-term buyer relationships enabled these firms to sustain shipment volumes. Their experience demonstrates that lower exposure to tariff-sensitive markets and alignment with global sustainability trends can enhance resilience.

Trade Policy Uncertainty, Buyer Behaviour, and Trust Deficit

Beyond measurable declines in quantity and value, the responses repeatedly emphasize the role of uncertainty and trust erosion in shaping export outcomes. Importers in the U.S. market adopted a wait-and-see approach, postponing procurement decisions even when demand conditions were favorable. This behavioral response amplified the impact of tariffs by disrupting long-term contracts and predictable shipment cycles.

Trust deficits were particularly evident in the marine sector, where buyers hesitated to resume imports despite continued global demand. This suggests that policy unpredictability can have lasting effects on trade relationships, extending beyond the immediate tariff period. The persistence of reduced exports even after partial policy relief highlights the importance of stable and transparent trade frameworks.

Role of Government Support Measures

Government interventions played a supportive but limited role in mitigating export losses. Interest subvention of 2– 3 percent, working capital loans, and extended bill discounting periods of up to one year provided temporary liquidity relief, especially for marine exporters. However, these measures did not address the core issues of market access, tariff competitiveness, and buyer confidence.

The executive order issued on November 13, 2025, exempting spices not grown in the U.S. from reciprocal tariffs, emerged as the most significant corrective policy intervention. Spice exporters anticipated gradual recovery in export quantities following this exemption. Nevertheless, the experience underscored the need for proactive trade diplomacy and early policy engagement to prevent prolonged disruptions.

Theoretical Interpretation and Broader Implications

From a theoretical perspective, the findings align with trade theory predictions regarding tariffs and export elasticity. Products with high price elasticity of demand, such as spices, exhibited sharp declines in export quantities following price increases. Market concentration further amplified vulnerability, as firms with high dependence on a single destination lacked alternative outlets. In the marine sector, non-tariff barriers in the form of export bonds functioned as quantitative restrictions, limiting effective supply despite strong demand.

The study also illustrates the importance of firm heterogeneity. Firms with higher technological capability, value-added processing, and diversified markets were better equipped to adjust quantities and sustain operations. Sustainability-oriented investments emerged as a complementary source of competitiveness, particularly in European markets.

Implications for Long-Term Export Strategy

This extended analysis demonstrates that U.S. trade policy changes produced deep, uneven, and persistent effects across firms and sectors. Quantity-wise declines were most severe in spices and marine products due to high price sensitivity, perishability, and heavy dependence on the U.S. market. Coconut and coir sectors were affected mainly through indirect channels, showing greater stability in volumes but pressure on unit values. The evidence clearly establishes that market concentration, lack of diversification, and limited value addition amplify vulnerability to external policy shocks.

Micro-Level Operational Impacts and Production Planning

Beyond export quantities, the response reveal substantial micro-level operational disruptions across firms. In the spices sector, reduced export orders led to irregular procurement of raw materials, affecting farmers and intermediaries upstream. Processing schedules were adjusted frequently, resulting in underutilisation of installed capacity, particularly during peak production seasons. For firms such as Company D, production planning had to be aligned with fluctuating European demand, increasing inventory holding costs and operational uncertainty.

In the marine sector, operational impacts were more severe due to the perishable nature of products. Reduced shipment volumes increased cold storage requirements and raised spoilage risk. Firms were forced to slow procurement from fishermen, indirectly affecting coastal livelihoods. Export bond requirements further constrained

operational flexibility, as capital locked in bonds could not be deployed for procurement or processing. These operational constraints translated into long-term efficiency losses.

Employment Effects and Labour Adjustments

The responses also point to labour-related impacts arising from export contraction. In spice processing units, reduced export volumes resulted in shorter working hours and temporary layoffs, particularly among contract labour. Although permanent employment was largely retained, income uncertainty increased. In marine processing units, employment effects were more pronounced due to sharp fluctuations in shipment volumes. Reduced container movements directly lowered processing days, affecting daily wage workers, especially women employed in peeling and cleaning activities.

Coir and coconut sectors experienced relatively limited employment disruptions due to stable export volumes. However, wage growth slowed and overtime opportunities declined. These findings indicate that trade policy shocks have distributional effects that extend beyond firms to labour markets.

Financial Stress, Credit Dependence, and Risk Exposure

Financial stress emerged as a recurring theme across firms. Exporters relied heavily on short-term credit to finance procurement, processing, and shipment. The imposition of tariffs and export bonds increased risk exposure by blocking liquidity and delaying payments. Medium-sized exporters such as Company B were particularly vulnerable, as limited access to alternative financing constrained their ability to absorb shocks.

Interest subvention and bill discounting provided temporary relief, but firms reported increased dependence on bank credit and higher risk aversion in accepting new export

orders. This shift toward conservative financial behaviour may have long-term implications for export growth and investment.

Market Structure, Bargaining Power, and Buyer Dominance

This analysis highlights asymmetries in bargaining power between Indian exporters and foreign buyers. In the U.S. market, buyers possessed significant leverage due to the availability of alternative suppliers. This allowed them to shift tariff burdens onto exporters through price negotiations. In contrast, in niche segments with limited suppliers, such as small-size shrimp, exporters retained some bargaining power, although financial constraints still limited shipment volumes.

European markets, while offering diversification opportunities, imposed stricter standards and lower prices, reinforcing buyer dominance. These structural characteristics influenced the extent to which firms could adjust quantities and prices.

Long-Term Structural Changes and Strategic Lessons

The cumulative impact of tariffs prompted firms to reassess long-term strategies. Spice exporters increasingly recognized the importance of reducing dependence on a single market and expanding value-added processing. Marine exporters began exploring cooked and processed products to improve margins and reduce vulnerability. Coconut and coir exporters reinforced sustainability-based positioning to strengthen access to stable markets.

The experience also revealed gaps in institutional support, particularly in managing sudden policy shocks. Strengthening trade intelligence systems, improving access to emergency credit, and enhancing exporter– government coordination emerged as critical priorities.

3.5 CONCLUSION

In synthesis, the analysis establishes that U.S. trade policy changes had multidimensional effects like quantity reductions, value losses, operational disruptions, employment impacts, and strategic realignment. Firms with diversified markets, technological capability, and sustainability orientation demonstrated greater resilience. Conversely, high market concentration and limited financial flexibility amplified vulnerability. The findings contribute to a deeper understanding of how global trade shocks affect firm-level outcomes in developing-country export sectors and provide valuable insights for future trade and industrial policy formulation.

CHAPTER 4
FINDINGS, RECOMMENDATIONS AND
CONCLUSION

4.1 FINDINGS

- Sectoral exports from Kerala to the U.S. exhibited heterogeneous short-run responses following the 2025 tariff measures. While fisheries and spices experienced notable year-on-year declines, coconut exports demonstrated resilience, and coir recorded only a modest contraction.
- The most pronounced contraction in exports was observed in September 2025, particularly in the fisheries sector. This pattern suggests an immediate adjustment phase following the tariff announcement rather than a gradual decline over time.
- Spices exports displayed a persistent decline across the post-tariff months, with no clear recovery by October 2025. This contrasts with fisheries, where partial recovery was evident, indicating differences in adjustment dynamics and market flexibility across sectors.
- Coconut exports emerged as an outlier, recording higher export values in 2025 compared to 2024 across all three months. This indicates relative insulation from short-run tariff effects, possibly due to product-specific demand conditions or pre-existing contractual arrangements.
- Coir exports showed limited volatility and signs of stabilization by October 2025. Compared to other sectors, coir appeared less sensitive to the immediate trade shock.
- Exporter responses broadly corroborated the quantitative trends, particularly with respect to order deferments and renegotiation of shipments following the tariff announcement. However, these qualitative insights are illustrative rather than representative due to the limited number of respondents.
- Several respondents emphasized that uncertainty surrounding trade negotiations and tariff policy significantly affected export decisions, as importers became hesitant to continue or renew contracts.

3.2 RECOMMENDATIONS

The findings of this study underline the need for more sector-specific and firm-informed policy responses to address the impact of global trade shocks such as recent U.S. tariff measures. Existing literature on trade conflicts also emphasizes that understanding the strengths and weaknesses of individual export sectors, along with firm-level experiences, is essential for designing effective and responsive trade policies.

Given the vulnerability observed in the fisheries and spices sectors, targeted short-term support measures are necessary to help exporters absorb sudden cost increases and maintain competitiveness. Export incentives, interest subvention, and assistance with logistics and compliance costs can provide immediate relief, particularly for small and medium exporters who are most exposed to external shocks.

At the same time, the study reinforces the importance of market diversification as a key risk-mitigation strategy. Export promotion agencies and commodity boards should actively support firms in accessing alternative markets such as Europe, the Middle East, and East Asia, thereby reducing excessive dependence on the U.S. market. Such efforts can help smooth export fluctuations during periods of trade policy uncertainty.

The relative resilience shown by the coconut and coir sectors highlights the potential role of value addition, branding, and quality upgrading in sustaining export performance. Policies that encourage product diversification, adherence to international standards, and development of niche markets can reduce price sensitivity and strengthen long-term competitiveness across sectors.

Firm-level insights also suggest the need for a more participatory policy approach, where exporters' experiences inform policy design. Regular consultations between exporters, commodity boards, and policymakers can improve the timeliness and relevance of support measures. Capacity-building initiatives aimed at enhancing