

Access Barriers for Marine Products Exporters in Andhra Pradesh

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Abstract: *The current study examines the barriers faced by marine product exporters in Andhra Pradesh, India. These are categorised into infrastructural, operational, human resource, financial, raw material, general, and exporting process barriers. The present study is descriptive in nature, and surveys 115 marine exporters from Andhra Pradesh. Cronbach's alpha and factor analysis are used to assess the reliability of the questionnaires and indicate a good reliability score between the variables. Following that, we used a single-factor Analysis of Variance (ANOVA) test to determine the significance of the variables. Finally, the findings show that infrastructural, general, and exporting process barriers have a positive significant relationship with export performance, whereas human resource, financial, raw material and operational barriers have a negative significant relationship. This study can be beneficial to state and central governments by increasing foreign reserves and tax revenue, increasing employment opportunities, expanding the global market, properly utilising natural resources, and improving banks' financial schemes.*

Keywords: Barriers; Marine products; Exports; Factor loading; ANOVA

JEL Classification: M5, M21, D4

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1. Introduction

In terms of fish production worldwide, India ranks third in both fisheries and aquaculture. The Indian marine industry is responsible for about 7.96% of the world's total fish production and employs around 28 million people. India's coast stretches for about 7,516 kilometres, and is made up of nine coastal states, four union territories and two island groups. India's coastline is bordered by the Bay of Bengal in the east, and the Arabian Sea and Indian Ocean in the west. Gujarat has India's longest coastline out of all the states, whereas Andaman and Nicobar Islands have the longest coastlines in the union territories (IBEF, 2020).

The marine products industry alone has a share of at least 6% in world exports, in which India is the fourth largest exporting country after China, Peru, and Japan (Das et al., 2016). The marine sector contributes about 43% (3.32 million metric tonnes or MMT) of India's total fish production of 7.85 MMT. However, this turns out to be less than half that of India's significant competitors in the fish trade (MPEDA, 2017). Marine product exports play a pivotal role in the Indian economy in terms of employment and income generation, besides valuable foreign exchange earnings. They are acknowledged as one of the commodities that move the fastest on the global food market and have generated a significant amount of demand in international trade (Manjunath et al., 2017). From 2020 to 2021, India's total marine and inland fish production stood at 14.73 MMT, which includes 11.25 MMT and 3.48 MMT from the inland and marine sectors respectively. The fishing sector plays a crucial role in the national economy and is one of the key contributors to the country's foreign exchange earnings. From 2020 to 2021, 66% of the marine fisheries potential and 51% of the inland fisheries potential were harnessed. India's production of marine products has been growing consistently for the last ten years. Total fish production grew from 8.67 MMT in 2011–2012 to 14.73 MMT in 2020–2021 (IBEF, 2020).

The maritime industry is categorised as a 'sunrise sector' under the Special Focus Initiative of the India's foreign trade policy. The global trade environment has drastically changed after the implementation of the World Trade Organization's General Agreement on Trade in Services (WTO-GATS). Nullified quantitative restrictions under the post-WTO regime offer a level playing field for all trading nations. Moreover, marine products are of industrial origin under the WTO and are being addressed in non-agricultural

market access (NAMA) negotiations. As a result, adhering to developed-country sanitary and phytosanitary (SPS) standards can yield massive trade benefits. It indicates potential for Indian marine product exports through upscaling technologies and multilateral negotiations.

There is a long history of fishing in Andhra Pradesh, which has a 974 km coastline that includes nine coastal districts. The state's marine fisheries industry has expanded significantly, evolving from traditional fishing in ancient times to modern, technologically advanced fishing, and in 2021, it reached record landings of 0.2 MMT, a gain of 6.2% over 2020. According to the Andhra Pradesh state's 555 marine fishing villages and 353 marine fish landing facilities. Most of the entire trawl catch (almost 70%) is landed in Visakhapatnam and Kakinada, the two main fishing harbours, plus three smaller fishing harbours at Bhairavapalem, Machilipatnam, and Nizamapatnam. The state has over 600,000 marine fishermen; with roughly a quarter engaged in fisheries-related activities throughout the year. There are 31,741 fishing craft in the marine fisheries of Andhra Pradesh (CMFRI, 2010).

The growth rate of marine exports in Andhra Pradesh is exciting because it increases the country's economic growth. The global market is also growing year by year. Globally, fish consumption has increased per capita over the last ten years. Marine products sales growth has also caused an increase in foreign reserves as well as in employment. Most marine products have good nutritional value, which will lead to higher consumption, expansion of the global market and optimal utilisation of natural resources. Despite the opportunities are available in the global marine market, marine product exporters in Andhra Pradesh are faced with a range of export barriers. Those problems are a lack of sufficient infrastructure, finance facilities, frozen packing technology, training facilities, governmental support, etc. These barriers directly and indirectly impact the growth rate of marine product exports. The present study is focusing on pinpointing the problems faced by marine product exporters. To identify the barriers, the researchers conducted personal and group interviews with exporters. Based on their responses, these barriers were split into seven different categories.

2. Literature Review

According to Malcorps et al. (2021), the different origins of catch fisheries and the growing cross-national sharing of aquaculture production make

seafood supply chains complex. Seafood events that promote networking and serve as platforms for communicating perspectives and beliefs enhance the business-to-business (B2B) seafood trade. Sustainability-related certifications and messaging have become an essential avenue for consumers, institutions, and leading companies in the global North. Malcorps et al. (2021) identify the trademarks, certifications, and claims shown at exhibitor booths at five seafood trade exhibitions in China, Europe, and the United States. The findings suggest that seafood is being advertised differently compared to messaging in Europe and the US, Chinese restaurants place a lower priority on sustainability but a higher priority on food safety and quality. These results imply cultural disparities in the B2B messaging used to communicate seafood production and consumption. Traders frequently serve as choice editors for end users. Therefore, it is crucial to communicate production methods and sustainability concerns to market participants. Better communication of product attributes like sustainability between producers, traders, and consumers could be supported by an awareness of culture, messaging techniques, and interpretation.

According to Chan et al. (2019), Africa's food and nutrition security is aided by fish, however, the future direction of the fish industry is still unknown. The researchers examine historical, current, and future trends of fish supply and demand in Africa to identify challenges and possibilities for the fish sector's capacity to contribute to food security on the continent. If historical patterns hold, fish consumption per capita will decrease as aquaculture and fisheries expand gradually. The importance of African aquaculture development in addressing food security is demonstrated by many scenarios. As Chan et al. (2019) state, the need for policies that support sustainable aquaculture, lower post-harvest losses, and easy fish commerce cannot be overstated. As a significant component of the African diet, fish merits more consideration in food and nutrition policies.

Sam Siril Nicholas et al. (2015) look at the Indian seafood industry's strengths, weaknesses, opportunities, and threats in the global supply chain. The Indian seafood industry exports a broad range of products and is a significant provider in the global seafood trade. In the past ten years, there have been significant changes in this trade because of environmental concerns, diet diversification, increasing global supply, international trade restrictions, and bioterrorism. The numerous SWOT (strength, weakness, opportunity, and threat) factors that Indian seafood exporters must deal with

in the context of a shifting global market are examined in this study.

Rajamohan and Jebadurai (2014) state that exports are essential to a nation's economic growth and development. India is a resource-rich nation with vast coastal regions. In the international logistics market, it sells a range of seafood to other nations. Due to exporters' ignorance of foreign exchange fluctuations and their tax purposes, they export seafood directly and indirectly. Every country needs to export because it benefits from foreign exchange, external resources, employment opportunities and other factors. However, a deficit is still visible in the balance of payments. The researchers examine the prospects and difficulties facing the Indian seafood industry against this background.

As Dabholkar et al. (2015) note, work-related musculoskeletal disorders (WMSDs) are a widespread health issue around the globe and a significant contributor to employment disability. The biggest risk factor for WMSD development is awkward working positions. The assessment of the exposure to WMSD risk can be used to properly plan and implement interventional ergonomics programs in the workplace. Over 14 million people are employed in India's large fishing industry. The physical demands of fishing make people more susceptible to musculoskeletal issues. Dabholkar et al. (2015) investigate the frequency of WMSD in the fishing sector among workers in Mumbai. The results show a significant prevalence of WMSD—highest in the low back (92.4%), shoulder (64.8%), knee (31%), and hand (25%). Pushing, throwing, and bending forward to lift and transfer heavy loads have all been identified as ergonomic risk factors.

Majumder (2018) looks at the socio-economic conditions of fishermen in India's northeast coastal region to help determine fishermen's financial and social status, and the obstacles to the marine industry and allied industries. The study shows that the impact of technology on the growth of this sector growth is evident. States such as Pondicherry, West Bengal, Odisha, Lakshadweep, Daman and Diu, as well as the Andaman and Nicobar Islands, have consistently demonstrated a pattern of little progress. Despite the opportunities for broad coastal coverage that they have—in contrast to Gujarat, Kerala, Maharashtra, Tamil Nadu, and Andhra Pradesh, which have shown extraordinary growth over the years—the fishing business in West Bengal has not shown any appreciable growth, and the socioeconomic circumstances of the fishermen still need to be more favourable. The cost of obtaining free resources and selling them for a profit also includes the

expense of abusing vulnerable and underprivileged fishermen. They receive essential government services since they are viewed as the nation's needier citizens, but they receive no particular distinction. The fishing business has been supported by technological advancements, skilled labour, significant investments, and many other reasons, but today's fishermen are only seen as day laborers. Majumder (2018) concludes that only the government can improve these workers' socio-economic circumstances by taking several infrastructure and development measures.

Kamal and Umamaheswararao (2020) focus on the financial difficulties faced by women in the marine fishing community in the coastal areas of Andhra Pradesh, specifically the lending options that they use. According to the researchers, the majority of the people in the fishing community make less than INR25,000. One of the primary sources of funding is payday lending. Self-help group (SHG) loans are used as a source of income by most of the respondents. To free this group from the chains of money lenders, this study concludes that banks should give priority to loans to this underprivileged community.

According to Venkateswarlu and Venkatrayulu (2019), Andhra Pradesh, the top aquaculture producer in India, counts shrimp farming among its main sources of income. In the current era of shrimp farming, disease mitigation has grown to be a substantial hurdle for shrimp growers. It investigated how diseases affected the growth of *Litopenaeus vannamei* in the coastal Andhra Pradesh districts of Nellore, Guntur, Krishna, West Godavari, and East Godavari. *Litopenaeus vannamei*, usually referred to as Pacific white shrimp or king prawn, is found in the eastern Pacific Ocean that is frequently captured or raised for food. The study takes into consideration the summer harvest of 2019. In all five of the selected districts of Andhra Pradesh, disease is identified as being the primary causes of significant losses in *Litopenaeus vannamei* culture. These diseases include the white spot syndrome virus (WSSV), white faecal syndrome (WFS), black gill disease (BGD), loose shell syndrome (LSS), running mortality syndrome (RMS), and *Enterocytozoon hepatopenaei* (EHP). Over 70% of the culture ponds in the districts of Nellore, 65% in Guntur, 69% in Krishna, 40% in West Godavari, and 50% in East Godavari reported these diseases. The summer crop was observed to have increased disease-related issues in all the chosen sites. The farms with biosecurity controls in place and no dissolved oxygen (DO) issues were found to have fewer illnesses.

The above researchers discuss different types of problems faced by marine exporters. These issues have a direct and indirect impact on the decline in marine product exports. These issues concern communication, sustainability, worker health, supplier socio-economic conditions, and product life. However, these problems not only impact the decline of exports; financial and infrastructure problems, as well as general exporting rules and regulations, also play a significant role. Based on this, we identified a research gap in the access barriers of marine product exporters in Andhra Pradesh. We include infrastructure, operational, human resource, financial, general, raw material, and exporting problems in this study after conducting interviews and discussions with exporters.

3. Research Design

The study focuses on the global export barriers faced by marine product exporters. Exporters are split into manufacturer exporters, merchant exporters, and route-through merchant exporters. Manufacturer exporters refer to those who manufactures goods for export; merchant exporters are those who deal in exported goods; while export houses, trading houses, star trading houses, or superstar trading houses with a certificate of approval from the Directorate General of Foreign Trade (DGFT) are considered route-through merchant exporters. Based on personal observations and interviews with exporters, real problems are classified into seven categories—infrastructural, operational, human resources, financial, raw material, general, and exporting process problems. The study area selected is Andhra Pradesh, which contains 19% (163) of the total exporters in India. Of these 163 marine exporters, 43 are based in Visakhapatnam, 70 in Bhimavaram and 50 in Vijayawada.

According to the export directory of Marine Products Export Development Authority (MPEDA), the 43 exporters in Visakhapatnam comprise 14 manufacturer exporters, 28 merchant exporters and one route-through merchant exporter. The 70 exporters in Bhimavaram comprise 30 manufacturer exporters, 27 merchant exporters and 13 route-through merchant exporters. The 50 exporters in Vijayawada include 22 manufacturer exporters, 21 merchant exporters and seven route-through merchant exporters (MPEDA, 2022).

A Likert scale was used in the questionnaire design. The questionnaire consists of a general profile and a list of barriers facing exporters. The

researchers contacted all 163 exporters for data collection, of which 115 provided complete data. This accounts for more than 70% of the respondents. Before collecting the data, a comprehensive rough interview schedule for 2021 was prepared to contact the exporters. The researcher collected the data from the respondents between May and October 2021, and modified the interview schedule wherever necessary.

Here, the perception of marine product exporters is the key parameter of the performance of exports (Table 1). Statistical tools such as mean, standard deviation, factor analysis, and single-factor Analysis of Variance (ANOVA) were used to analyse the data.

Table 1: Variables

Independent variables	Dependent variable
Infrastructural barriers	Performance of exports
Operational barriers	
Human resource barriers	
Raw material barriers	
Financial barriers	
General barriers	
Exporting process barriers	

3.1 Study hypothesis

Based on the above, the study formulates the following hypotheses:

- H1* There is a significant difference between infrastructural barriers and the performance of exports
- H1a* There is no significant difference between infrastructural barriers and the performance of exports
- H2* There is a significant difference between operational barriers and the performance of exports
- H2a* There is no significant difference between operational barriers and the performance of exports
- H3* There is a significant difference between human resource barriers and the performance of exports

- H3a* There is no significant difference between human resource barriers and the performance of exports
- H4* There is a significant difference between raw material barriers and the performance of exports
- H4a* There is no significant difference between raw material barriers and the performance of exports
- H5* There is a significant difference between financial barriers and the performance of exports
- H5a* There is no significant difference between financial barriers and the performance of exports
- H6* There is a significant difference between general barriers and the performance of exports
- H6a* There is no significant difference between general barriers and the performance of exports
- H7* There is a significant difference between exporting process barriers and the performance of exports
- H7a* There is no significant difference between exporting process barriers and the performance of exports

4. Results

According to Czinkota and Ricks (1983), an exporter may face a particular problem frequently but believe it to be unimportant. Other issues may be considered critical but rarely a problem. As a result, the measurement of each problem item was based on two Likert-type attribute scales. Respondents were asked to rate the frequency of occurrence of each problem on a scale ranging from 'no problem' (1) to 'extremely high' (5). Additionally, they were asked to rank the importance of each item. These importance ratings were calculated on a scale from strongly disagree (1) to strongly agree (5) that each difficulty item harms the company's exporting activities. They were based on participants' perceptions of the severity of those problems.

To test the dimensionality of the 53 exporter problem items, principal component analysis was used. A seven-factor solution was found using the

screen test and an eigenvalue threshold of one (Table 2). The model explains 74% of the total variance and was distinguished by strong individual loadings on each factor, thereby enabling conceptual interpretation. The seven problem dimensions have been assigned the following names, in the order in which the variance in each has been explained: infrastructural barriers (Problem 1), operational barriers (Problem 2), human resource barriers (Problem 3), financial barriers (Problem 4), raw material barriers (Problem 5), general barriers (Problem 6), and exporting process barriers (Problem 7).

Table 2: Factor Loading Values

	Factor (percentage of variance explained)	Loading	Alpha
Problem 1	<i>Infrastructural barriers</i>		0.79
	Frequency of power failure/interruption	72.2	
	Potable water deficit for processing	70.4	
	Lack of transport facilities	68.7	
	Unhygienic landing centre	68.6	
	No hub port facilities	67.8	
	Lack of storage/warehousing	68.7	
	Shipment delay for want of vessels	70.4	
Problem 2	<i>Operational barriers</i>		0.81
	Deficit in farm culture	68.7	
	Raw material shortage	69.6	
	Poor quality of raw fish	67.8	
	Lack of post-harvest handling systems	69.6	
	Lack of hygienic processing techniques	67.8	
	Lack of modern equipment for the process	65.2	
	Lack of subsidies on power tariffs	71.2	
Problem 3	<i>Human resource barriers</i>		0.76
	Non-availability of skilled labour	68.7	
	Labour disputes	67.8	
	Lack of skilled and trained workers	70.4	
	Lack of training for new employees	66.1	
	Difficulty in grievance handling	66.2	
	Lack of implementation of HR policies	71.3	
	Not following HR initiatives by the units	68.7	

	Factor (percentage of variance explained)	Loading	Alpha
Problem 4	<i>Financial barriers</i>		0.85
	Need large amounts for initial investment	69.5	
	Inadequate credit facilities for purchases of raw materials	68.7	
	High rate of interest on private loans	70.4	
	Lack of financial support from the government	68.7	
	Lack of support from public sector banks	67.0	
	Non-availability of subsidised loans	73.9	
Problem 5	<i>Raw material barriers</i>		0.89
	Unavailability of sufficient raw materials	69.6	
	High advance needed for a future booking of raw materials	69.6	
	Distance to acquire raw materials	67.8	
	Unavailability of quality raw materials	66.9	
	Export-quality raw material not available in local markets	69.6	
Problem 6	<i>General barriers</i>		0.80
	Marine export policies do not favour exporters	69.5	
	Lack of government incentives for the marine export sector	71.4	
	Lack of government initiative to promote image abroad	67.8	
	Inadequate trade information system	68.7	
	High cash transaction taxes	74.0	
	Difficult marine product export process	67.8	
	High fringe benefit taxes	73.1	
	Integrated approaches in planning for the fisheries industry	64.5	
	Unavailability of dispute settlement machinery	76.6	
More competition discourages marketing	81.7		
Problem 7	<i>Exporting process barriers</i>		0.71
	Competition from other exporters	72.2	
	Varied quality specifications from importers	65.2	
	Frequent price fluctuation from importers	66.1	
	Tariff barriers of importing countries	68.7	
	High freight rigidity in export formalities	74.7	
	Institutional rigidity in export formalities	70.5	
	Varied tax laws and rules for exporting marine products	65.2	
	Stringent laws and rules for exporting marine products	73.1	
	Complicated documentation for exporting marine products	72.2	
Unstable government policies on marine exports	71.3		

Note: * Principal component analysis, with varimax rotation, converging in 50 iterations; ** Factor loadings of less than 0.5 are suppressed

5. Discussion

The parameters revealed were then used to build additive scales. They were assessed for dependability using the Cronbach alpha coefficient (1951). These scales satisfy the 0.5 or better reliability requirement for exploratory research set out by Nunnally (1967), as shown in Table 2. In most instances, improving dependability scales involves weighing individual exporter-issued items according to their importance.

Infrastructural barriers represent a need for more basic physical and organisational facilities for exporting marine products. The infrastructural barriers were framed in seven statements. These statements are significant for determining the purpose of Cronbach's alpha and factor analysis tests used. As shown in Table 2, all questions related to infrastructural problems recorded loading values above 68%, which means enormously strengthened infrastructural barriers. The Cronbach's alpha score records 79% reliability between the barrier and statements.

The inability to function or process the export of marine products is represented by operational barriers. Seven statements were made about strengthening operational barriers. According to Table 2, all statements have strong reliability between the questions of at least 65%. The Cronbach's alpha score was 81%, indicating a strong influence on operational barrier statements.

Human resource barriers include a lack of skilled labour, training, and policies, among other things. Identification of human resource barriers framed seven statements. Table 2 shows that all statements are scored at or above 66% (the ground limit is 50%), with an alpha score of 76%. Financial barriers represent the difficulties that exporters face in obtaining financing. How will the business continue if no investment is made? The financial barriers were framed six statements. According to Table 2, all statements are scored at or above 67%, indicating good reliability between the statements. The alpha score is 85%, the second highest among the barriers. Raw material barriers relate to acquiring good material, advances, and availability distance. The raw material barriers framed six statements. All statements are scored at or above 67%. The alpha score is 89%, the highest score compared to other barriers.

General barriers include export policies, government incentives, the export process, cash transaction taxes, and inadequate trade information. The general barriers were framed in ten statements. All statements scored 64% or

higher, with an alpha score of 80%. Exporting process barriers are issues that exporters face during the exporting process, such as price fluctuations, tariff barriers, high freight, or unstable export policies. The exporting barriers were framed in ten statements. All statements have a score of more than 65%, with an alpha score of 71%.

An interval scale has five points, such as the Likert scale. Then, based on the mean value, respondents' opinions were considered. Strongly disagree is scored from 1 to 1.8, disagreement from 1.81 to 2.60, neutral from 2.61 to 3.40, agreement from 3.41 to 4.20, and highly agree from 4.21 to 5.00 and above (Pimentel, 2010).

From Table 3, the mean results for infrastructural barriers are over 3.41, indicating that all respondents agree this impact export performance. Shipment delays due to a lack of vessels had the highest mean value of all statements. Subsequently, the standard deviation results were observed to see if all statements are more consistent about opinions. The null hypothesis accepts the ANOVA single factor significance between infrastructure barriers and export performance. There is a link between infrastructure barriers and export performance.

Table 3: Descriptive Statistics

Descriptive statistics of marine exporters' barriers		Mean	SD	p-value
Problem 1	<i>Infrastructural barriers</i>			0.05
	Frequency of power failure/interruption	3.88	3.15	
	Potable water deficit for processing	3.71	3.09	
	Lack of transport facilities	3.66	3.05	
	Unhygienic landing centre	3.57	3.04	
	No hub port facilities	3.79	3.09	
	Lack of storage/warehousing	3.52	3.12	
	Shipment delay for want of vessels	3.94	3.12	
Problem 2	<i>Operational barriers</i>			1.25
	Deficit in farm culture	3.82	3.12	
	Raw material shortage	3.75	3.13	
	Poor quality of raw fish	3.98	3.06	
	Lack of post-harvest handling systems	3.63	3.11	
	Lack of hygienic processing techniques	3.59	3.09	
	Lack of modern equipment for the process	3.77	2.98	
	Lack of subsidies on power tariffs	3.54	3.09	

Descriptive statistics of marine exporters' barriers		Mean	SD	p-value
Problem 3	<i>Human resource barriers</i>			2.31
	Non-availability of skilled labour	3.60	3.08	
	Labour disputes	3.79	3.08	
	Lack of skilled and trained workers	3.67	3.13	
	Lack of training for new employees	3.52	3.02	
	Difficulty in grievance handling	3.44	3.06	
	Lack of implementation of HR policies	3.81	3.17	
	Not following HR initiatives by the units	3.51	3.09	
Problem 4	<i>Financial barriers</i>			1.85
	Need large amounts for initial investment	3.55	3.13	
	Inadequate credit facilities for purchases of raw materials	3.89	3.06	
	High rate of interest on private loans	3.67	3.15	
	Lack of financial support from the government	3.60	3.09	
	Lack of support from public sector banks	3.86	3.06	
	Non-availability of subsidised loans	3.44	3.19	
Problem 5	<i>Raw material barriers</i>			2.10
	Unavailability of sufficient raw materials	3.66	3.14	
	High advance needed for a future booking of raw materials	3.74	3.12	
	Distance to acquire raw materials	3.85	3.04	
	Unavailability of quality raw materials	3.65	3.05	
	Export-quality raw material not available in local markets	3.55	3.11	
	Unexpected hikes in the cost of raw materials	3.65	3.12	
Problem 6	<i>General barriers</i>			0.01
	Marine export policies do not favour exporters	3.96	3.14	
	Lack of government incentives for the marine export sector	3.41	3.18	
	Lack of government initiative to promote image abroad	3.66	3.05	
	Inadequate trade information system	3.83	3.12	
	High cash transaction taxes	3.45	3.21	
	Difficult marine product export process	3.50	3.10	
	High fringe benefit taxes	3.43	3.18	
	Integrated approaches in planning for the fisheries industry	3.43	3.17	
	Unavailability of dispute settlement machinery	3.53	3.25	
	More competition discourages marketing	3.63	3.33	

Descriptive statistics of marine exporters' barriers		Mean	SD	p-value
Problem 7	<i>Exporting process barriers</i>			0.03
	Competition from other exporters	3.42	3.18	
	Varied quality specifications from importers	3.50	3.01	
	Frequent price fluctuation from importers	3.60	2.99	
	Tariff barriers of importing countries	3.53	3.12	
	High freight rigidity in export formalities	3.50	3.25	
	Institutional rigidity in export formalities	3.77	3.13	
	Varied tax laws and rules for exporting marine products	3.67	2.98	
	Stringent laws and rules for exporting marine products	3.44	3.20	
	Complicated documentation for exporting marine products	3.41	3.15	
	Unstable government policies on marine exports	3.89	3.17	

Note: Most items measured on a five-point Likert Scale (1 = not a problem; 5 = significant barrier); * 0.05 cut-off, statistically significant difference in the means

The mean results for operational barriers are over 3.41, indicating that all respondents agree that these barriers impact export performance. Poor quality raw fish had the highest mean value among all statements. There is no significant deviation between the respondents. The ANOVA single factor single factor significance shows that there is a significant inverse association between operational barriers and export performance.

The mean results for human resource barriers are between 3.44 to 3.81, indicating that all respondents agree that these barriers impact export performance. The lack of implementation of human resource policies has the highest mean value of all statements. There is no significant deviation between the respondents. The ANOVA single factor single factor significance shows that there is a significant inverse association between human resource barriers and export performance.

The mean results for financial barriers are between 3.44 to 3.89, indicating that all respondents agree that these barriers impact export performance. The highest mean value among all statements is insufficient credit facilities for purchasing raw materials. There is no significant deviation between the respondents. The ANOVA single factor single factor significance shows that there is a significant inverse association between financial barriers and export performance.

The mean results for raw material barriers are between 3.55 to 3.84, indicating that all respondents agree that these barriers impact export performance. The distance required for obtaining raw material had the highest mean value among all statements. There is no significant deviation between the respondents. The ANOVA single factor single factor significance shows that there is a significant inverse association between raw material barriers and export performance.

The mean results for general barriers are between 3.41 to 3.96, indicating that all respondents agree that these barriers impact export performance. Marine export policies being unfavourable to exporters had the highest mean value among all statements. The null hypothesis accepts the ANOVA single factor significance between general barriers and export performance. There is a positive correlation between general barriers and export performance.

The mean results for exporting process barriers are between 3.41 to 3.89, indicating that all respondents agree that these barriers impact export performance. The unstable policies of the government toward marine exports had the highest mean value of all statements. The null hypothesis accepts the ANOVA single factor significance between exporting process barriers and export performance. There is a positive correlation between exporting process barriers and export performance.

6. Conclusion

This study examined the obstacles exporters face when exporting marine products. Because previous studies have not comprehensively listed all the issues confronting marine exporters, the present study focuses on the remaining significant barriers. To that end, researchers focused on examining seven types of barriers faced by marine exporters. Infrastructural, general, and exporting process barriers are the three categories that were found to impact export performance.

Infrastructural barriers include lack of power outages, vessel-related shipment delays, as well as a lack of transportation, storage, water, and hub ports. These facilities are under the control of the government, which can be improved to raise export performance. At ground level, MPEDA monitors export performance, so the agency can communicate with the state and central government to improve facilities.

General barriers include marine export policies that are unfavourable to the exporters, cash transaction taxes, inadequate information, fringe benefit taxes, and the export process. These too are under the governmental control. The central government can rethink export policies, lower tariff rates, and promote the industry.

Some of the exporting process barriers include competition from other exporters, varied quality specifications of importers, frequent price fluctuation, and tariff barriers of importing countries. These barriers are not entirely avoidable, but with some precaution, they are controllable. MPEDA can monitor exporters and improve product quality via training, using frozen techniques, selecting good seeds, and so on. The government can concentrate on the documentation procedure to make it simple and easy to understand.

As a result, the state government, the central government, and the MPEDA will take steps to remove all barriers to their initiative. Other barriers, such as operational, human resource, financial, and raw material constraints, have no bearing on export performance. Because this is a descriptive study based on respondents' responses, we cannot conclude that these issues are not influencing export performance. The results would be more conclusive if respondents have a strong command and understanding of questions; otherwise, the results will be negative.

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