

Limitations and Possibilities of Local Port: Focusing on the Case of Yeongil Bay Port

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In this study, we explore the complex dynamics between the inherent growth limitations and the untapped developmental possibilities of regional ports, with a primary focus on the operational trajectory of Yeongil Bay Port in Pohang. Despite its debut as a strategic gateway intended to alleviate the concentration of cargo in major hubs such as Busan and Ulsan, the port has consistently struggled with a significant disparity between projected capacity and actual throughput. In this research, we address the fundamental question of whether such cargo scarcity is a systemic inevitability for local ports operating in the shadow of dominant international hubs. While conventional literature has extensively categorized the determinants of port growth, it often fails to provide a solution to the deeper structural barriers that fix regional competitiveness. To transcend these limitations, in this paper, we introduce a bifurcated strategic model: leveraging immediate marine-cultural branding to revitalize the port as a vibrant tourist destination in the short term, which in turn serves as a catalyst for a long-term transition toward stable, logistics-oriented industrial evolution. By integrating maritime heritage, such as haenyeo (traditional female divers) traditions and local myths, into the port's identity, we argue that passenger-driven economic vitality can eventually facilitate the structural demand necessary for sustainable cargo logistics.

1. Introduction

The post-World War II expansion of free trade accelerated cross-border economic activity, while the rise of multinational enterprises facilitated the global dispersion of production across increasingly integrated markets. These developments contributed to a more pronounced international division of labor, and the widespread adoption of supply chain management systems became a driving force behind the rapid advancement of the logistics sector. Such growth was enabled by attempts to generate new forms of value creation within port hinterlands, particularly as global trade infrastructures became concentrated around major hub ports and international airports. Within this evolving environment, ports have conventionally been

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conceptualized as logistics-oriented spaces whose competitiveness is shaped by factors such as cargo-handling performance, network connectivity, and the scale of associated industrial activities. Prior studies similarly highlight logistics-related attributes—including geographical positioning, operational and transport efficiency, and the strength of hinterland linkages—as central determinants of port competitiveness.^(1–5)

However, in subsequent periods, cultural assets emerged as the primary basis for the city's economic development, ultimately becoming the only competitive element that distinguished it from external regions.^(6–8) Such autonomous competitiveness has been shaped not merely by strategic considerations but also by the degree of integration with surrounding hinterland areas, the structure of local industries, and broader patterns of spatial fragmentation.⁽⁹⁾ In this context, we reconceptualize ports in this study not as conventional “logistics spaces,” but as multifunctional urban nodes characterized by experience-based activities, consumption, and cultural engagement.

From this standpoint, we examine the potential and inherent limitations of local ports, with a specific focus on Yeongil Bay Port in Pohang. Upon its inauguration, expectations emerged that the port would capture a portion of the cargo handled by nearby hub ports such as Ulsan and Busan. However, in light of its comparatively modest logistics infrastructure and still-developing operational stability, these expectations proved substantially unrealistic. Although Yeongil Bay Port was envisioned as a prospective central port along the East Coast, it has continued to experience persistent shortages in cargo throughput, a challenge further aggravated by the disruptions following the global pandemic. This raises two important questions. First, are local ports inherently disadvantaged in competition with major hub ports? Second, are chronic cargo shortages an unavoidable outcome? Addressing these questions constitutes a central objective of this study.

As noted earlier, prior research on the revitalization of local ports has primarily concentrated on identifying the determinants of port growth and assessing the relative significance of those factors.^(2–4) Although such antecedent variables provide useful guidance for establishing policy priorities, they do not fundamentally resolve the structural challenges confronted by local ports. To address these limitations, we advance a dual-track strategic framework: positioning cargo transportation and logistics development as long-term structural tasks, while concurrently enhancing Pohang's competitiveness as a tourist destination through the cultivation of maritime cultural resources, a defining characteristic of port cities.

This study is organized as follows. In the next section, we provide a review of the existing literature on port revitalization and synthesize the principal antecedent factors identified in prior research. In Sect. 3, we offer an analysis of the current conditions of Yeongil Bay Port and assess the extent to which these antecedents can be realistically applied in the case of local ports. In Sect. 4, we present strategic directions for advancing Pohang's development as a cultural city. Finally, in Sect. 5, we conclude the study by summarizing the key findings and outlining their broader implications.

2. Theoretical Background

2.1 Prior research on logistics-related determinants

Previous port-related research can be categorized into two primary scholarly streams. The first comprises studies that explore or empirically identify the determinants that significantly affect port revitalization and competitiveness.^(1–4) The second encompasses research assessing the broader economic spillover effects of port development, including contributions to regional growth and national indicators such as gross domestic product.^(10–13) Because we aim to identify strategies for revitalizing local ports, our analytical focus aligns with the first stream. Accordingly, we synthesize and organize the major determinants highlighted in prior empirical and conceptual investigations.

2.1.1 Geographic factors

Geographic factors constitute one of the most fundamental determinants of port performance because they shape the spatial accessibility of maritime and inland transport networks.⁽¹⁴⁾ Ports located along major global shipping routes benefit from natural advantages in transit time, deviation cost, and vessel scheduling efficiency. Natural depth, shelter conditions, and exposure to weather risks also affect a port's attractiveness for large container vessels and highly regularized liner services. Additionally, proximity to industrial clusters and large consumer markets determines the size of the potential hinterland and the viability of logistics consolidation activities. While geography is often considered a "given," many studies emphasize that strategic investments (e.g., dredging, breakwaters, and artificial channels) can partially compensate for inherent geographical disadvantages.

2.1.2 Physical infrastructure

Physical infrastructure encompasses port layout, terminal facilities, quay length, storage capacity, rail/road access, and information and communication technology systems that support real-time operations.^(15,16) Adequate capacity and modern equipment—such as automated container handling systems—allow ports to reduce vessel turnaround time and enhance reliability. Infrastructure quality also affects the economies of scale achievable by carriers, especially as mega-vessels require deep drafts and high-productivity cranes. A port with insufficient or outdated infrastructure often suffers from congestion, increased handling costs, and service unreliability. Empirical studies consistently show that infrastructure investment is positively associated with port throughput, operational efficiency, and network centrality in global liner routes.

2.1.3 Operational efficiency and service quality

Operational efficiency refers to the productivity and speed with which port operators manage vessel berthing, cargo handling, gate operations, and intermodal transfers.⁽¹⁷⁾ Ports with advanced terminal operating systems, optimized yard management, and coordinated gate operations achieve faster vessel turnaround and higher berth productivity. Service quality also includes reliability, flexibility, and responsiveness to customer needs, which are crucial criteria for shipping lines and freight forwarders. Greater operational efficiency not only reduces logistics costs but also minimizes service variability—an important consideration for supply chains that rely on just-in-time practices. Studies suggest that even ports with modest infrastructure can remain competitive if they deliver consistently superior service quality and process coordination.

2.1.4 Hinterland connectivity

Hinterland connectivity captures the degree to which a port is integrated into inland logistical networks through road, rail, barge, and dry-port systems.^(3,4) Efficient inland connections enable cargo to move seamlessly between the port and manufacturing zones, distribution centers, and consumption markets. Conversely, poor connectivity, increases transit time, congestion, and total logistics cost—often deterring shippers from using local ports. The development of multimodal corridors and inland logistics hubs can significantly expand a port's effective hinterland and strengthen its competitive position relative to dominant hub ports. As many studies emphasize, hinterland connectivity is a strategic long-term determinant that often outweighs marginal improvements in port-side infrastructure.

2.1.5 Logistics networks and forwarder (liner/carrier) selection

Freight forwarders and shipping lines play a decisive role in determining whether local ports are included in service networks or bypassed in favor of major hubs. Their route selection reflects factors such as consolidation potential, service frequency, vessel size constraints, and operational reliability. Because forwarders manage end-to-end logistics chains, their preference is often affected by inland distribution efficiency rather than port-side incentives alone. Network effects also matter: once a port becomes part of a stable liner route, it gains visibility and reliability that attract additional users. Consequently, local ports seeking revitalization often focus on building long-term strategic relationships with forwarders, niche carriers, or feeder networks to secure stable service commitments.

2.1.6 Regional industrial structure and demand base

The range and intensity of industrial activities in the port's surrounding region strongly affect the demand for import/export logistics services. Ports connected to diversified and export-oriented manufacturing clusters tend to generate stable cargo flows that sustain regular liner

services. Conversely, regions with weak industrial bases or declining populations struggle to provide sufficient demand to maintain competitive port operations. The elasticity of cargo generation is also shaped by industrial specialization—for example, steel, petrochemicals, automobiles, and agricultural products require distinct logistics infrastructures and service patterns. Many studies highlight that without the revitalization of regional industries, port-focused investments alone rarely succeed in creating sustainable increases in cargo volume.

2.1.7 Port governance and institutional arrangements

Port governance encompasses ownership structures, regulatory frameworks, decision-making authority, concession models, and coordination mechanisms among stakeholders. Effective governance ensures aligned interests between port authorities, terminal operators, local governments, and logistics firms, enabling coherent development strategies. Transparent and flexible governance structures also facilitate private investment, innovation, and competitive terminal operations. Studies indicate that ports with decentralized, corporatized, or landlord governance models tend to perform better because they balance commercial autonomy with public oversight. Ultimately, governance determines not only the pace of infrastructure development but also the ability to coordinate hinterland systems, negotiate with carriers, and implement long-term competitiveness strategies.

2.2 Comprehensive implications of previous research

Guy and Urli⁽¹⁸⁾ conducted a comparative analysis of port choice behavior among shipping companies operating between New York in the United States and Montreal in Canada. Their findings revealed that, despite Montreal offering substantially more favorable conditions—such as significantly lower port charges and superior service performance—shipping lines continued to prefer New York. This outcome suggests that port selection cannot be fully explained by conventional cost–benefit calculations or operational efficiency metrics alone. Instead, their study highlights the importance of broader strategic, relational, and network-based considerations that often outweigh purely economic advantages.

These insights are particularly relevant for smaller regional ports such as Yeongil Bay Port. In such cases, shipping companies' routing and port selection decisions tend to be shaped not by direct port costs or measured productivity levels, but rather by structural factors embedded within the overall logistics system. Long-term contractual arrangements, strategic alliances, and investment ties—such as equity participation in terminal operating rights—play a central role in determining whether carriers incorporate a local port into their service networks. As a result, even when a local port offers competitive pricing or operational benefits, these advantages may not be sufficient to attract or retain regular liner services.

This dynamic is clearly illustrated in the “Yeongil Bay Port Revitalization Plan” released by the Pohang branch of the Bank of Korea in 2011.⁽¹⁹⁾ The report indicates that key cost-related variables—such as stevedoring charges, inland transportation expenses, and cargo-handling productivity—had virtually no effect on the routing decisions of shipping companies using

Busan Port. In other words, regardless of how favorable these conditions might become at Yeongil Bay Port, they would not fundamentally alter carriers' established preferences. The findings underscore the structural limitations faced by local ports when competing with large hub ports, suggesting that port revitalization requires strategic approaches that extend beyond conventional cost-based competitiveness.

To summarize the above, a substantial body of research on the revitalization of local ports has primarily concentrated on identifying the major antecedent factors that affect port performance and assessing the relative importance of each factor. Although such analyses provide meaningful insights for establishing policy priorities, their explanatory power remains limited. Because these studies focus solely on predefined variables, they may contribute to formulating more efficient policy measures, yet they fall short of offering fundamental solutions to the structural challenges facing local ports.

Drawing on the findings of prior research, the following core insights can be synthesized:

- (a) Sustained policy support is essential for the revitalization of local ports.
- (b) For port users, the choice of freight forwarders is more influential than economic incentives, indicating that the restructuring or reconfiguration of the broader logistics system plays a decisive role in port utilization.
 - (i) A more fundamental approach involves revitalizing regional industries and hinterland development, rather than relying solely on direct port-specific support.
 - (ii) Efforts to strengthen regional industries and hinterland complexes must be integrated with logistics system transformation and pursued from a long-term perspective.
 - (iii) To remain competitive against major hub ports, such as Busan Port, local ports must enhance their competitiveness through strategic specialization.

Prior research on the revitalization of local ports has largely concentrated on identifying the determinants of port growth and assessing the relative effects of these factors. While such analyses offer valuable insights for establishing policy priorities, they do not fully confront the underlying structural issues—such as the path dependency of global liner networks and the hub-and-spoke concentration—that inherently limit the competitiveness of local ports.

To transcend these systemic barriers, we propose a dual-track strategic approach. This framework recognizes that while the development of cargo and logistics functions must remain a long-term structural agenda to ensure industrial viability, it requires an immediate, self-sustaining catalyst. Therefore, we reconceptualize the local port not merely as a logistics space subject to external cargo fluctuations, but as a multifunctional urban node characterized by experience-based activities and cultural engagement. By promoting maritime cultural assets as a short-term initiative, Pohang can cultivate a unique, non-substitutable competitiveness that distinguishes it from major hubs, thereby stimulating regional passenger demand and creating a foundational economic ecosystem for future logistics expansion.

3. Current Status and Limitations of Yeongil Bay Port

The Ministry of Oceans and Fisheries announced that in 2023, trade ports across the country handled a total volume of 1551.03 million tons (1320.13 million tons of import and export cargo and 230.9 million tons of coastal cargo), a 0.04% decrease from the previous year (1551.71 million tons).

The export and import volume in 2023 was 1,320.13 million tons, a 1.0% increase from the previous year (1307.64 million tons), and the coastal volume was 230.9 million tons, a 5.4% decrease from the previous year (244.06 million tons).

Moreover, the total port cargo volume in the fourth quarter of 2023 was 394.45 million tons, an increase of 2.7% compared with the same period last year, the import and export volume of which was 335.61 million tons, an increase of 3.6% compared with the same period of the previous year. By port, Busan Port, Gwangyang Port, and Pyeongtaek/Dangjin Port increased by 2.2, 1.7, and 0.4% compared with the previous year, while Ulsan Port and Incheon Port decreased by 1.2 and 2.0%, respectively.

3.1 Current status of Yeongil Bay Port

Yeongil Bay Port in Pohang functions as an international container port serving the broader Daegu–Gyeongsangbuk-do region. Established in 2009, the port was envisioned as a logistics hub for the East Sea rim, targeting trade flows from China’s northeastern provinces, Russia, Japan, and Southeast Asia. Despite early expectations that profitability would be achievable by capturing even a modest share of the cargo generated within its hinterland—principally Daegu and Gyeongsangbuk-do—the port has not experienced the anticipated growth. Although Yeongil Bay Port articulated a long-term vision of becoming a central gateway along the East Sea, it continues to face significant operational challenges stemming from insufficient cargo throughput. Table 1 presents recent trends in cargo volume at Pohang Outer Port, including Yeongil Bay Port.

3.2 Limitations of Yeongil Bay Port

The recent decline in cargo throughput at Yeongil Bay Port is the outcome of a complex set of structural, economic, and logistical factors that collectively weaken its competitiveness within the regional and international port system. One of the most fundamental issues lies in the port’s long-standing dependence on the steel industry, which has historically served as the dominant driver of both inbound and outbound cargo. While this specialization facilitated early growth, it now renders the port particularly vulnerable to shifts in global steel demand, production

Table 1
Trends in cargo volume at Pohang Outer Port (including Yeongil Bay Port).

Year	Volume (R/T)	Change (%)
2018	52867226	—
2019	53313155	0.84
2020	51013726	−4.31
2021	51536879	1.03
2022	42869839	−16.82
2023	43300972	1.01
2024	42192172	−2.56
2025	38703944	−8.27

Source: National Logistics Information Center (Korea).

adjustments by major regional manufacturers, and broader industrial restructuring trends. As the steel sector faces cyclical downturns and increasing competitive pressures, the volume of raw materials and finished steel products moving through the port has correspondingly diminished, directly contributing to a contraction in overall throughput.

Compounding this industry-specific vulnerability is the relatively limited development of a diversified hinterland economic base. Ports with strong and varied manufacturing and logistics clusters typically exhibit high cargo stability and growth, as multiple industries generate steady flows of goods. In contrast, Yeongil Bay Port's hinterland lacks a sufficiently broad mix of high-value or container-friendly industries, resulting in a narrow set of cargo origins and destinations. This weak industrial ecosystem not only restricts opportunities for value-added logistics services but also discourages shipping lines from allocating larger or more frequent vessels to the port.

Another significant factor is the absence of robust and regular international shipping routes. Modern port competitiveness is strongly shaped by network accessibility, and ports that fail to secure stable liner services often struggle to retain cargo even from their natural hinterland. In Yeongil Bay Port's case, the limited number of direct international services reduces its connectivity to major global markets, prompting shippers and freight forwarders to consolidate cargo at competing local ports that offer greater schedule reliability and route diversity. This trend is reinforced by the proximity of larger ports with established reputations, more extensive global linkages, and economies of scale that lower logistics costs.

Infrastructure-related limitations further constrain the port's growth potential. Yeongil Bay Port remains under-equipped in specialized logistics capacities such as cold-chain systems, temperature-controlled storage, and advanced reefer handling—capabilities that have become increasingly critical as global trade in fresh foods, biomedical products, and premium processed goods expands. Without these facilities, the port is unable to capture emerging cargo segments or meet the operational standards required by shippers in high-value supply chains. Additionally, the insufficient integration between the port and the surrounding urban economy reduces opportunities for generating local demand for consumer goods logistics, tourism-related freight, and other forms of consumption-driven cargo flows that can supplement traditional industrial volumes.

Inland transportation conditions also weaken the port's relative attractiveness. Efficient port operations rely heavily on reliable road and rail connections that minimize travel time and reduce overall logistics costs. However, constraints in Yeongil Bay Port's inland transport network—such as limited multimodal connectivity and bottlenecks in freight movement—raise the cost of using the port for both domestic and international supply chains. These obstacles make alternative ports more appealing, particularly for time- or cost-sensitive cargo. Finally, broader demographic and socioeconomic trends in the region cannot be overlooked. Declining population levels and stagnant regional consumption reduce the scale of local demand for imported goods, diminishing the volume of domestic container traffic that often forms a stable baseline for port operations. When domestic cargo flows weaken, ports become even more dependent on volatile export-oriented industries, compounding cyclical vulnerabilities.

Taken together, these factors illustrate that the reduction in cargo throughput at Yeongil Bay Port is not attributable to a single cause but rather reflects a systemic imbalance involving industrial dependence, infrastructural limitations, competitive disadvantages, and broader regional transformations. Addressing this decline will therefore require an integrated strategy that simultaneously strengthens the port’s industrial base, enhances its logistical and network capacity, and improves its connection to the urban and regional economy. The principal factors contributing to the decline in cargo volume at Yeongil Bay Port are summarized in Table 2.

4. Potential of Yeongil Bay Port: Pohang as a Cultural City

Building on the previous section, which examined the current conditions and structural limitations of Yeongil Bay Port, in this section, we discuss a dual-track strategy that leverages the port’s inherent strengths. Logistics-related determinants—which are heavily affected by the economic conditions of the hinterland—are difficult to address in the short term and therefore require a long-term strategic perspective. By contrast, initiatives aimed at promoting cultural tourism and stimulating passenger traffic can generate more immediate outcomes. Accordingly, in this study, we propose a dual-track approach that differentiates between short- and long-term objectives. In the short term, Pohang, endowed with a diverse range of maritime cultural resources, should enhance its attractiveness as a tourist destination to draw a larger number of

Table 2
Causes of decreased cargo volume at Yeongil Bay Port.

Category	Description
Industrial structure dependence	The regional economy remains heavily dependent on the steel industry, resulting in the limited diversification of export-import cargo types. A downturn in steel production directly reduces port throughput.
Weak hinterland industrial base	The lack of a sufficiently developed manufacturing and logistics cluster in the hinterland restricts the volume of containerized and value-added cargo flows.
Insufficient international shipping routes	Yeongil Bay Port has not secured stable, high-frequency international liner services, reducing its attractiveness to global shippers and freight forwarders.
Competition from nearby ports	Competing ports within the region offer more extensive networks, lower costs, and stronger cargo bases, drawing potential cargo away from Yeongil Bay Port.
Limited cold-chain and high-value logistics capacity	Inadequate cold storage, reefer facilities, and specialized logistics infrastructure weaken competitiveness in emerging cargo sectors such as fresh food, bio-products, and premium processed goods.
Insufficient port–city integration	Weak connectivity between the port and the urban economy reduces consumption-driven logistics demand and limits synergies that could stimulate cargo flows.
Transportation network constraints	Suboptimal road and rail connections hinder efficient inland logistics, increasing transportation costs and reducing shipper preference.
Declining regional population and consumption	Demographic decline in the surrounding region reduces volume in consumer goods logistics, weakening potential domestic cargo throughput.
Logistics cost disadvantages	Higher logistics and handling costs relative to larger, more competitive ports limit the port’s ability to attract shipping lines and large shippers.

visitors. This approach assumes that the activation of cultural tourism will boost passenger demand, thereby contributing to the short-term revitalization of the port. In the long term, however, a structural shift from tourism-driven development to logistics-oriented growth is required. The influx of external tourists can invigorate the local economy, which in turn may expand regional industries and ultimately increase logistics demand. Through this mechanism, we propose a long-term plan aimed at securing a stable volume of port cargo.

4.1 Short-term strategies based on cultural tourism

Pohang's maritime culture and heritage constitute a foundational layer of the region's coastal identity and provide a rich narrative framework for port-centered tourism development. Elements such as the *Yeonorang* and *Seonyeo* myth (a traditional Korean coastal legend), coastal archaeological remains, and marine-related cultural practices collectively reflect the longstanding interaction between local communities and the sea. These resources are valuable not only for their historical significance but also for their potential to shape distinctive visitor experiences situated within the port environment. Because maritime heritage inherently aligns with the spatial logic of the waterfront, it offers numerous opportunities for designing interpretive landscapes, thematic walking routes, and symbolic entry points that allow visitors to encounter cultural narratives upon arrival. In this sense, maritime heritage serves as an integrative platform that can strengthen the cultural resonance of the port, enhance place-based storytelling, and contribute to the creation of a recognizable destination image anchored in Pohang's coastal traditions.

The *haenyeo* (traditional female divers) culture, characterized by traditional free-diving practices and the generational knowledge of coastal ecosystems, represents a unique form of intangible heritage that embodies the lived experience of maritime subsistence. Unlike material artifacts, *haenyeo* traditions emphasize embodied skills, community-based resilience, and a sustainable relationship with the marine environment. These attributes position the *haenyeo* culture as a compelling resource for developing experiential and participatory tourism programs within or adjacent to the port area. Demonstrations, educational workshops, and interpretive exhibits can provide visitors with insight into the divers' techniques, environmental stewardship practices, and social organization. Because the *haenyeo* culture highlights authentic human–sea interactions, its integration into the port landscape can enhance the locality's cultural depth, diversify available tourism experiences, and support the narrative branding of the port as a space rooted in everyday maritime life rather than solely industrial logistics.

Pohang's culinary traditions and festival culture, particularly those related to *gwamegi* (dried herring and mackerel) and seasonal seafood events, function as dynamic cultural assets that stimulate visitor engagement through sensory and communal experiences. Food heritage connects local ecological conditions with cultural practices, while festivals create temporal focal points that attract both residents and tourists. When strategically linked to the port, such assets can generate consistent and seasonal flows of visitors, expanding the port's role as a social and cultural venue. Integrating gastronomic markets, themed event zones, and waterfront-based celebrations enhances the vibrancy of the port area and encourages longer visitor stays, which in

turn benefits surrounding businesses and contributes to a more active urban–port interface. Moreover, the promotion of local seafood products through festival-based consumption can indirectly support regional logistics demand, particularly in fresh and processed marine products, thereby creating a meaningful bridge between cultural experiences and economic functions within the port ecosystem. Table 3 shows Pohang’s major cultural resources and their potential linkages to port-based tourism.

Building on the preceding examination of Pohang’s diverse cultural assets—ranging from maritime heritage to haenyeo-related traditions and distinctive local food cultures—it becomes evident that these resources can serve as foundational drivers for revitalizing passenger flows at Yeongil Bay Port. While the port currently functions primarily as a logistical gateway, its strategic coastal position and proximity to culturally rich communities provide conditions favorable for developing a more tourism-oriented maritime hub. By systematically integrating cultural narratives, place-based experiences, and leisure-oriented programming into port operations, Pohang can reposition Yeongil Bay Port as a multidimensional destination rather than solely a transit point. In this regard, three strategic pathways that capitalize on the unique characteristics of the surrounding region and translate them into sustained increases in passenger maritime mobility can be proposed.

Table 3
Cultural resources of Pohang.

Resource type	Specific elements	Port linkage
Maritime culture and heritage	–Legends and narratives such as the <i>Yeonorang</i> and <i>Seonyeo</i> myth –Coastal archaeological sites	These heritage components can be integrated into waterfront storytelling spaces, thematic trails, and interpretive facilities, allowing visitors to engage with maritime identity immediately upon arrival at the port. Their symbolic association with the sea provides a strong foundation for branding the port area as a culturally distinctive waterfront and for developing experiential tourism programs centered on local history.
Haenyeo culture	– <i>Haenyeo</i> diving activities –Sea-foraging techniques and daily practices	The haenyeo tradition offers opportunities for creating immersive cultural demonstrations, marine experience programs, and educational exhibitions within or adjacent to the port precinct. Because the haenyeo culture embodies authentic interactions with the coastal environment, it can help differentiate the port as a venue where visitors can observe or learn about sustainable marine livelihoods, thereby strengthening the experiential dimension of the port’s tourism appeal.
Food and festivals	–Gamaegi food tradition –Seasonal seafood-based events	Culinary heritage and festival events can generate regular visitor flows to the port area, supporting consumption-driven activities and strengthening commercial vibrancy. Integrating food markets, festival zones, and port-themed gastronomic programs into the waterfront can transform the port into a dynamic cultural venue, increasing dwell time and stimulating demand for logistics services related to regional seafood and specialty products.

4.1.1 Activating sports and leisure tourism through the port waterfront

A first strategic direction involves transforming the Yeongil Bay waterfront into a dynamic arena for sports and leisure tourism, thereby leveraging its natural maritime environment and existing urban–coastal interfaces. The expansive coastline, stable marine conditions, and visually appealing bay setting offer strong potential for establishing recreational programs such as sailing schools, coastal kayaking routes, stand-up paddleboarding zones, and annual maritime sports competitions. Integrating these activities with port-adjacent promenades, bicycle paths, and open public spaces would create a cohesive waterfront leisure cluster with high experiential value. Moreover, aligning these offerings with regional branding campaigns and cruise or ferry itineraries can reinforce the perception of Yeongil Bay Port as a gateway to active and adventure-based coastal tourism. By cultivating a vibrant maritime leisure ecosystem, the port stands to attract both domestic and international visitors who seek high-quality outdoor recreational experiences.

4.1.2 Developing storytelling-based tourism contents featuring haenyeo performance and local myths

A second strategic approach centers on utilizing Pohang's haenyeo culture and associated oral traditions as narrative resources for place-specific tourism content. Although haenyeo communities in Pohang may be less globally recognized than those in other regions, their distinctive harvesting practices, community rituals, and localized maritime myths represent valuable intangible heritage. Curating interpretive programs—such as immersive haenyeo demonstration performances, educational exhibitions on traditional diving techniques, and guided storytelling sessions based on local legends—can provide visitors with culturally meaningful experiences anchored in authenticity. Incorporating these elements into port arrival zones, heritage trails, and coastal cultural centers will enhance the identity of Yeongil Bay Port as an entry point to a unique maritime cultural landscape. Such narrative-based tourism products not only promote cultural appreciation but also foster stronger emotional engagement, ultimately encouraging longer stays and repeated visitation.

4.1.3 Promoting culinary tourism and local economic vitalization through food culture

A third strategic measure involves advancing gastronomic tourism initiatives that foreground Pohang's diverse seafood cuisine, seasonal ingredients, and food festival traditions. The region's culinary identity—shaped by coastal harvesting practices, local markets, and community-driven food events—provides a compelling platform for creating port-centered culinary experiences. Establishing specialized dining districts near the port, offering tasting programs led by local chefs, and organizing food-themed festivals aligned with ferry schedules can significantly enhance the attractiveness of Yeongil Bay Port as a gastronomic gateway. Additionally, partnerships with local producers, fisheries cooperatives, and small businesses will facilitate economic spillovers into the broader regional economy, reinforcing the port's role in supporting

sustainable community development. By positioning food culture as a central experiential asset, Pohang can cultivate a differentiated tourism profile that appeals to passengers seeking authentic culinary encounters.

4.2 Long-term strategy: structural shift from cultural tourism to logistics

The long-term objective is to convert the momentum generated by short-term passenger and tourism initiatives into the durable economic transformation of Pohang's regional system, thereby creating sustained demand for freight logistics and restoring port throughput. This structural transition can be conceptualized as a staged process involving (1) demand aggregation and market formation, (2) value-chain upgrading and industrial diversification, and (3) logistics capacity deepening and integration with global trade networks.

4.2.1 Phase 1: Demand Aggregation and Market Formation

Aggregated tourist demand—realized through sports/leisure events, cultural performances, and gastronomic festivals—should be deliberately leveraged to stimulate local markets for goods and services. Policy instruments that encourage local production for tourist consumption (for example, certification schemes for locally produced seafood, capacity grants for small processors, and targeted business development services) will help convert episodic visitor spending into recurring commercial activity. The visible effects include growth in microenterprises, the expansion of retail and hospitality supply chains, and rising demand for inputs such as packaging, cold storage, and last-mile distribution services.

4.2.2 Phase 2: Industrial Upgrading and Value-chain Enhancement

As these markets mature, targeted industrial upgrading should be promoted to capture higher value in the chain. This entails fostering small- and medium-scale processing facilities (e.g., value-added seafood processing, packaged culinary products), quality-assurance systems, and branding and export readiness programs. Public support could take the form of co-investment in pilot processing hubs, tax incentives for certification and export facilitation, and subsidized technical assistance to adopt food-safety and cold-chain practices. The emergence of such processing and aggregation nodes will generate predictable and higher-value cargo flows—particularly refrigerated and packaged goods—that are more amenable to containerization and formal logistic networks.

4.2.3 Phase 3: Logistics Capacity Building and Infrastructure Integration

Simultaneous investment in logistics capacity is required to absorb and scale these new cargo flows. This covers physical infrastructure (dedicated reefer handling facilities, bonded cold storage, and packing and consolidation centers at or near the port), operational systems (integrated terminal operating systems and digital booking and tracking platforms), and modal

connectivity (improved rail and road freight corridors linking productive clusters to port terminals). The sequencing is critical: without credible logistics capacity, producers will remain discouraged from scaling output; conversely, logistics investment without upstream production risks underutilization.

The strategy should be operationalized through phased targets across a 5–10-year horizon. Early milestones might focus on establishing producer cooperatives, pilot processing lines, and port-adjacent cold storage. Midterm objectives will target sustained export shipments, formalized liner calls for refrigerated cargo, and measurable growth in containerized value-added goods. Long-term outcomes should aim for a diversified cargo composition, reduced seasonality in throughput, and demonstrable linkage between tourism-driven economic activity and increased port volumes. Key performance indicators include the number of processing firms established, the tonnage of refrigerated exports, the frequency of liner services for targeted commodities, and year-on-year growth in twenty-foot equivalent units attributable to value-added local goods.

Finally, the transition requires active measures to mitigate risks: market volatility, skill shortages, and environmental impacts. Risk mitigation actions include promoting flexible business models (contract farming/aggregation), collaborating with local universities to design specialized curricula for workforce training linked to processing and cold-chain logistics, and adopting sustainability standards to ensure long-term market access. By aligning academic programs with the specific technical and managerial demands of the regional maritime logistics sector, these institutions ensure a steady supply of expert talent, which is fundamental to bridging the gap between tourism-driven vitality and industrial growth.

5. Conclusions

In this study, we examined strategies for revitalizing local ports, with a particular focus on Yeongil Bay Port. By their structural characteristics, local ports are expected to absorb a portion of the logistical demand generated by major hub ports while simultaneously sustaining growth through interaction with the surrounding local economy. However, limited demand from their hinterland regions creates fundamental constraints: local ports often lack sufficient infrastructure development and face persistent difficulties in securing stable logistics flows. Ultimately, their long-term viability depends on the ability to attract consistent cargo volumes—a challenge that cannot be resolved within a short time horizon.

To address this constraint, we proposed an alternative strategic orientation that shifts attention toward enhancing the maritime cultural assets embedded within port cities to stimulate short-term passenger demand. The mobilization of these cultural resources functions as a structural catalyst for a self-sustaining economic cycle: initially, the influx of maritime tourists stimulates local consumption and retail markets, establishing a stable commercial baseline that eventually fosters the growth of value-added regional industries, such as specialized seafood processing and premium branding. As these industrial nodes mature and upgrade their value chains, they generate a consistent flow of high-value, containerized cargo—particularly refrigerated and packaged goods—thereby necessitating and sustaining professionalized

logistics services and expanding the port's long-term throughput. Through this sequential transformation, ephemeral visitor spending is strategically converted into permanent demand for freight logistics, effectively bridging the gap between cultural engagement and industrial performance. Nonetheless, the advancement of maritime culture-based tourism, although conceived here as a short-term measure, must be approached with a long-term developmental perspective.

The successful implementation of this dual-track strategy depends on the establishment of robust governance mechanisms.⁽²⁰⁾ Local governments, functioning as strategic coordinators, must effectively guide and align the simultaneous promotion of cultural tourism and logistics demand. Port authorities, in turn, should cultivate diverse external networks to maintain an appropriate equilibrium between passenger- and freight-oriented functions. Strengthened collaboration with relevant cultural and tourism institutions is particularly important for advancing tourism-related initiatives. Furthermore, industry actors must work toward forming a self-sustaining industrial ecosystem, as both logistics operations and cultural tourism activities are vulnerable to numerous external uncertainties. Finally, local universities play a crucial role by establishing specialized, industry-linked curricula—focusing on maritime tourism planning and environmental, social, and governance-integrated logistics management—to cultivate the interdisciplinary human resources required to support these efforts.

This study advances beyond previous research, which has predominantly emphasized logistics-related determinants of port revitalization, by introducing a novel perspective that prioritizes maritime culture as a foundation for cultural tourism development in port cities. Its primary contribution lies in presenting a differentiated strategic framework that distinguishes between long-term structural issues and short-term developmental opportunities. However, a notable limitation is that the study does not provide a detailed causal mechanism explaining how the revitalization of cultural tourism translates into increased logistics demand. Future research should address this gap to strengthen the theoretical and practical implications of the proposed strategy.

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