

Differentiation and Growth Trends of Vietnam's Freight Transport Sector

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Abstract: *This study examines the structural shifts and growth trajectories of Vietnam's transport sector during the volatile period of 2017–2024. By analyzing time-series data of transport volume and traffic (ton-km), the research elucidates profound disparities across multiple dimensions. The findings indicate that the Red River Delta and the Southeast continue to serve as the primary growth poles, with Hanoi and Ho Chi Minh City acting as central regulatory hubs. Structurally, the non-state economic sector reinforces its role as the industry's backbone, maintaining an overwhelming share of total output. While road transport retains absolute dominance in terms of domestic accessibility and transport volume, maritime and inland waterway transport remain indispensable for long-haul freight traffic. Notably, the study identifies a resilient "V-shaped" recovery within the transport sector following the COVID-19 pandemic and emphasizes a strategic pivot from international transport toward fortifying the domestic market as a critical stabilizer for the national economy.*

Keywords: *Freight transport, Transport volume, Transport traffic.*

I. INTRODUCTION

In modern economic structures, transport and logistics are no longer merely supporting services but have become the "lifeline" determining national productivity and competitiveness. The 2017–2024 period marked unprecedented fluctuations in Vietnam's transport sector, ranging from the rapid expansion of expressway infrastructure to supply chain disruptions caused by the global pandemic.

Previous literature consistently identifies transport as a key driver of economic growth. Arvis et al. (2018), through the World Bank's LPI report, confirmed that infrastructure connectivity is directly proportional to the ability of developing countries to participate in global value chains. In Vietnam, Tran (2015) indicated that investment in road transport infrastructure has a strong spillover effect on regional labor productivity. Following this approach, Le and Phan (2022) clarified the role of multimodal transport in optimizing logistics costs; however, they noted that conditions for logistics and multimodal operations still face numerous difficulties and disadvantages.

Nevertheless, geographical fragmentation remains a major challenge. Blancas (2014), in a report on economic corridors, warned of transport cost disparities between inland and coastal regions. Yin et al. (2019) pointed out that Vietnam's trucking industry faces the dual challenge of high logistics costs and significant greenhouse gas emissions. Their study emphasizes that optimizing trucking efficiency not only reduces operational costs for businesses but is also key to achieving environmental goals within sustainable development. Khuat (2012) observed that geographical fragmentation is a critical bottleneck, as infrastructure and traffic volumes are overly concentrated in key corridors. This lack of inter-regional connectivity not only inflates logistics costs in disadvantaged areas but also exacerbates national geo-economic imbalances. Regarding economic sectors, Blancas et al. (2014) emphasized that the socialization of transport services enhances operational efficiency compared to less competitive state-owned enterprises.

The impact of external shocks, particularly the COVID-19 pandemic, has also garnered significant academic attention. Agyemang and Irannezhad (2025) reviewed 62 papers to analyze the disruptions caused by COVID-19 to global logistics, proposing strategic policy frameworks to enhance resilience and pandemic preparedness. In the Vietnamese context, Do et al. (2021) showed that the pandemic had the most negative impact on small-scale logistics enterprises. The study concluded that most of these firms were ill-prepared for the crisis and faced limitations in adapting to digital transformation practices. Furthermore, the trend of digital transformation in logistics, according to Kern (2021), has become a vital factor in reducing freight traffic costs. Finally, the Ministry of Industry and Trade (2023) report affirms that domestic transport is increasingly becoming a solid pillar for the economy amidst international trade volatility.

By analyzing empirical data from 2017 to 2024, this article aims to further elucidate the landscape of transport fragmentation in Vietnam, providing objective insights into the roles of specific regions and transport modes in the new economic development process.

Beyond the introduction, the structure of the article is organized as follows: Part 2 presents the Data and Methodology; Part 3 discusses the Research Results; and Part 4 provides the Conclusion.

II. DATA AND METHODOLOGY

2.1. Data

The data utilized in this study were collected from official secondary sources provided by the General Statistics Office of Vietnam (GSO), specifically through national statistical yearbooks and periodic socio-economic reports. The dataset spans from 2017 to 2024, incorporating forecasted figures for 2025 to ensure currency and a long-term analytical perspective. The selection of 2017 as the base year is strategically significant in terms of statistical methodology, as it marks a pivotal transition in the GSO's calculation techniques and sample extrapolation methods for the transport sector, particularly regarding road transport and individual business households. By adopting this starting point, the study ensures methodological consistency and accuracy, effectively eliminating systematic errors caused by previous methodological shifts and establishing a reliable frame of reference for trend analysis.

The research dataset focuses on core indicators reflecting the capacity and performance of the logistics industry, including freight transport volume and freight traffic. Freight transport volume, measured in million tons, represents the physical scale and cargo-handling capacity of the entire sector. Freight traffic, measured in million ton-kilometers, reflects transport efficiency by integrating both cargo weight and the actual distance traveled. Furthermore, the data are disaggregated into domestic and international transport to evaluate the degree of integration and the shifts in cargo flows under the influence of macroeconomic factors and the global pandemic.

Another critical justification for choosing 2017 as the starting year is to guarantee the comprehensiveness and uniformity of the research subjects. According to technical notes from the GSO, transport statistics prior to 2017 did not include data from centrally managed state-owned enterprises. Commencing the analysis from 2017 allows the study to encompass all economic sectors, including these vital state-owned entities. This approach ensures an accurate reflection of the transport sector's true scale and prevents artificial data deficiencies or misleading declines that would otherwise occur when comparing across periods if an earlier baseline were utilized.

2.2. Methodology

The study employs descriptive statistics to evaluate the industry's scale through absolute figures, alongside comparative analysis to clarify growth rates and proportions via relative figures. Time-series analysis is applied to transport volume and traffic variables to identify shifting trends across economic regions, economic sectors, and transport modes. Consequently, visual charts are utilized to demonstrate the sector's fragmentation and recovery resilience.

III. RESULTS

3.1. Freight Transport Performance by Mode of Transport

During the 2017–2024 period, the transport sector recorded robust growth in scale, yet exhibited distinct divergence across key indicators. In terms of overall volume, freight transport volume grew continuously from 1,383.2 million tons in 2017 to a projected 2,575.3 million tons in 2024, achieving an impressive growth rate of 86.2% over seven years. Conversely, freight traffic (ton-km) experienced significant volatility due to the pandemic and global supply chain disruptions; after reaching a short-term peak in 2019 (291,942 million ton-km), this indicator plunged by 35.5% in 2021 before recovering strongly to 296,470 million ton-km by 2024. This discrepancy indicates that while domestic consumption demand (transport volume) remained resilient, import-export activities and long-haul logistics (transport traffic) were directly impacted by global economic fluctuations.

Regarding structural composition, road transport reinforced its position as the "backbone" of freight movement, accounting for 78.8% of total volume in 2024 (up from 77.7% in 2017). This dominance is attributed to its flexibility, point-to-point connectivity, and the expansion of the expressway network, which led to an absolute increase of over 955 million tons in road transport volume during this period. However, in the structure of transport traffic, road transport does not hold an exclusive position due to its short-haul characteristics. In this regard, maritime transport serves as the primary driver by leveraging its deep-sea shipping advantages; despite accounting for only about 5% of transport volume, it consistently contributed 40–50% of total transport traffic prior to 2021.

A notable "shift in dominance" occurred in the transport traffic structure starting in 2021, as the aviation sector surged from 922.5 million ton-km in 2019 to over 14,051 million ton-km in 2021, becoming the largest contributor to transport traffic in that year. This reflects a shift toward transporting high-value goods, electronic components, and urgent logistics needs during the pandemic. Meanwhile, inland waterway transport maintained stability, though its share of transport traffic trended slightly downward (from 18.7% in 2017 to 12.9% in 2024). Railway transport has yet to make a breakthrough, contributing less than 2% to both indicators, highlighting a

significant imbalance in the logistics system that necessitates correction through more synchronized infrastructure investment policies.

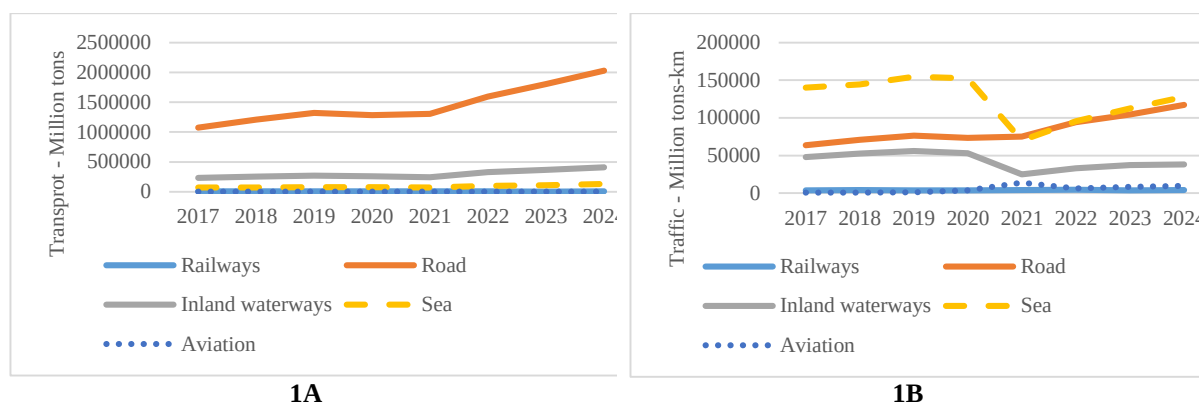


Figure 1A & 1B. Freight transport volume and traffic by mode of transport, 2017–2024

3.2. Freight Transport Performance by Scope of Activity

Following the analysis of transport modalities, a cross-sectional examination by scope of activity—distinguishing between Domestic and International sectors—reveals starkly contrasting characteristics in terms of scale, growth rates, and strategic roles.

In terms of transport volume, the domestic sector holds absolute dominance and serves as the primary growth engine for the entire industry. Absolute figures show that domestic transport surged from 1,349.5 million tons in 2017 to a projected 2,536.7 million tons by 2024, representing an 88% increase. Relatively, this sector consistently maintains an overwhelming share of over 98% of total freight volume, underscoring the economy's heavy reliance on internal cargo flows for production and consumption. Conversely, international transport occupies a minimal market share in volume (under 2%), fluctuating between 24.3 and 38.6 million tons throughout the period. This reflects the nature of import-export goods, which often possess high value-to-weight ratios compared to total domestic circulation.

However, regarding transport traffic (ton-km), the roles of the two sectors are more balanced, even exhibiting a "status reversal" in leadership. At the beginning of the period (2017), international traffic reached 136,833.3 million ton-km, surpassing the domestic level of 123,398.5 million ton-km, confirming the pivotal role of international transport in connecting long-distance economic corridors. The most significant volatility occurred in 2021, when both sectors experienced deep declines due to the pandemic and global supply chain disruptions; the international sector was more severely impacted, plummeting to a floor of 84,312 million ton-km.

The primary drivers of this volatility were the skyrocketing costs of international maritime freight and border restrictions during the pandemic. Since 2022, the domestic sector has recovered and accelerated more robustly, overtaking the international sector to reach 169,432.8 million ton-km by 2024 (accounting for 57.2% of total traffic). This shift indicates an improvement in domestic long-haul transport capacity and reflects a trend of shifting supply chains further inland to mitigate risks from international fluctuations. Nevertheless, international transport remains an irreplaceable "lifeline," handling nearly 43% of the industry's total traffic despite accounting for only 1.5% of its volume, demonstrating superior efficiency in cross-border trade connectivity.

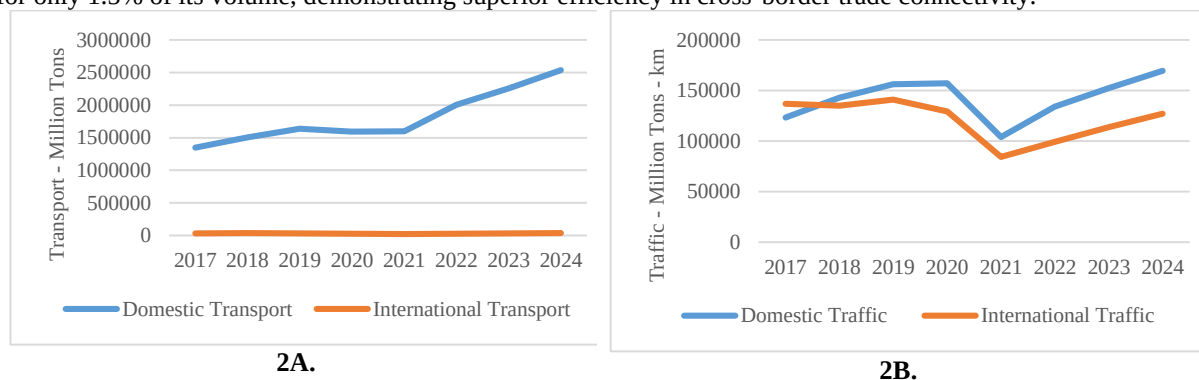


Figure 2A & 2B. Freight transport volume and traffic by scope of activity, 2017–2024

3.3. Freight Transport Performance by Economic Sector

An analysis of transport capacity by economic sector reveals a distinct divergence: the non-state sector holds an overwhelming dominance in transport volume, whereas transport traffic performance is more balanced between the various sectors.

In terms of transport volume, the non-state economy serves as the primary growth engine and maintains an absolute majority share. Absolute figures show a powerful surge from 1,278.6 million tons in 2017 to a projected 2,443.4 million tons in 2024, consistently accounting for over 90% of the industry's total volume. This dominance is primarily driven by the dynamism of private enterprises and individual business households in meeting short-haul road transport and domestic distribution demands. Meanwhile, the state-owned economy maintains stability at a much lower level (fluctuating around 100 million tons per year), and the foreign-invested (FDI) sector, despite doubling its volume over seven years, still represents the smallest structural share.

However, regarding transport traffic (ton-km), the landscape shifts significantly as the state-owned sector asserts a pivotal role, competing directly with the non-state sector. During the 2017–2020 period, the state-owned sector even led in traffic performance, exceeding 150,000 million ton-km—higher than the non-state sector's output. This underscores the fact that state-owned enterprises continue to manage key infrastructure and focus on long-haul, heavy-duty transport and strategic national routes.

Notably, both primary sectors recorded a sharp decline in 2021 (dropping below 100,000 million ton-km) due to long-haul supply chain disruptions during the pandemic, before recovering concurrently by 2024 to reach 149,717 and 142,839 million ton-km, respectively. As for the FDI sector, although its contribution to traffic remains the lowest, it was the least affected by the pandemic's negative volatility, maintaining steady absolute growth. These differences demonstrate that while the non-state sector excels in "quantity" (volume), the state-owned sector remains the backbone of "quality" and distance (traffic), providing essential complementarity within the national logistics system.

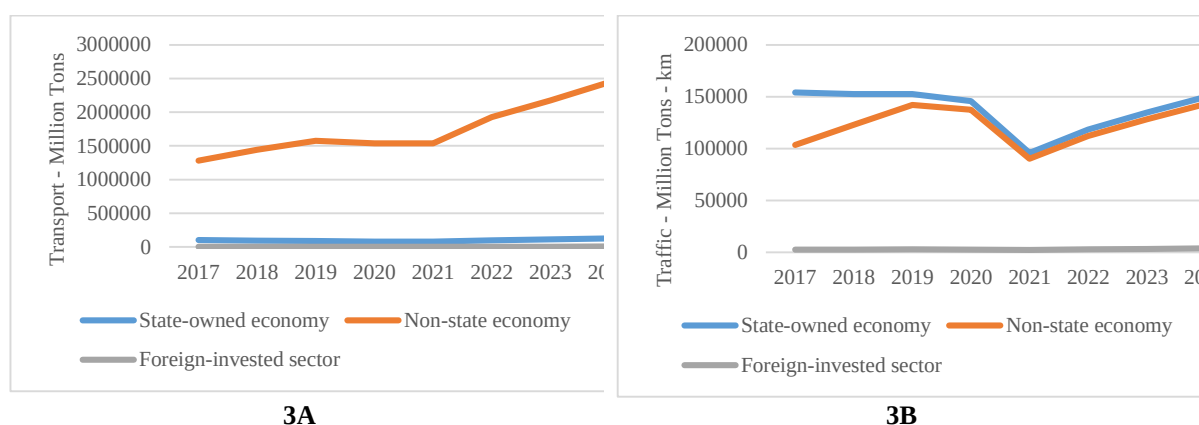


Figure 3A & 3B. Freight transport volume and traffic by economic sector, 2017–2024

3.4 Freight Transport Performance by Geography and Locality

From a geographical perspective, the transport landscape during the 2017–2024 period recorded profound polarization, with the Red River Delta asserting its leading position through overwhelming figures. In absolute terms, the transport volume of this region more than doubled, rising from 475,181.7 million tons in 2017 to a record 1,000,390 million tons in 2024. It holds the largest share and maintains a gap nearly 2.3 times larger than the second-ranked region, the Southeast (429,098.1 million tons). Regarding relative figures, the growth rate of transport volume in the Red River Delta reached an impressive level of over 110% after seven years. In contrast, although the Central Highlands showed improvement, it remained the smallest in scale at 81,767.8 million tons in 2024, equivalent to only about 8% of the leading region. Notably, freight traffic indicators also demonstrate the strong breakthrough of key economic regions; most notably the Southeast, where transport traffic increased from 34,682 million ton-km (2017) to 85,297.37 million ton-km (2024), corresponding to a breakthrough growth rate of over 145%, surpassing the general growth levels of many other areas.

The disparity in these transport indicators is an inevitable consequence of differences in infrastructure and economic density across regions. The skyrocketing growth rates in the Red River Delta and the Southeast evidence the efficiency of concentrating resources into expressway systems, deep-sea ports, and modern logistics centers, which serve the massive circulation demands of industrial zones and FDI enterprises. Conversely, in regions such as the Central Highlands or the Northern Midlands and Mountains, although transport volume increased, traffic speed and distance remained low due to fragmented terrain and high transport costs, causing

goods to circulate primarily within a narrow scope. The "V-shaped" recovery of the Southeast following the slowdown caused by the pandemic (2020–2021) also demonstrates the resilience and dynamic economic elasticity of gateway regions compared to the stable but slower nature of inland areas.

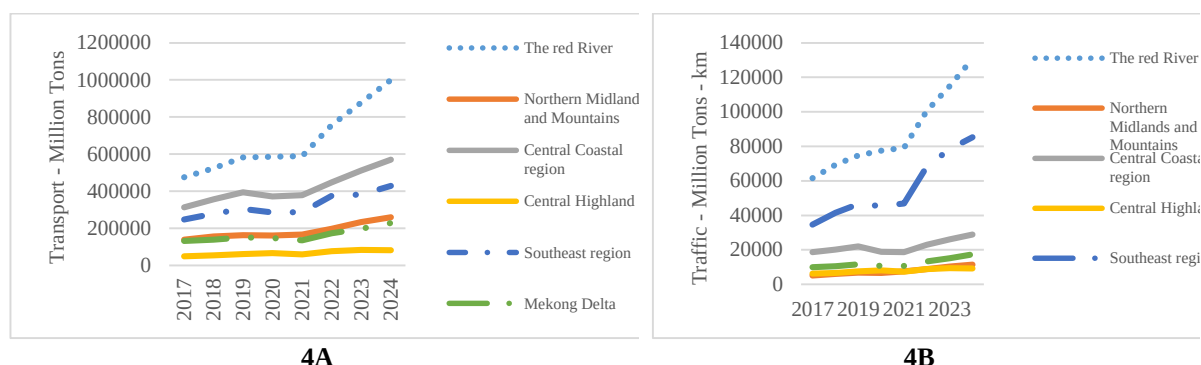


Figure 4A & 4B. Freight transport volume and traffic by region, 2017–2024

The fragmentation in the transport landscape extends beyond regional scales, manifesting clearly through the breakthrough growth figures of key economic hubs. In terms of **freight traffic (million ton-km)**, Ho Chi Minh City maintained its leading position with remarkable growth, rising from 27,797.8 in 2017 to 72,225.8 in 2024, representing an increase of over 159%. Notably, Hai Phong maintained steady performance with a nearly 75% increase over the same period, reaching 37,735.19 million ton-km by the end of the term, reaffirming its role as the pivotal logistics gateway for the North. Meanwhile, regarding **freight transport volume (million tons)**, Hanoi achieved a spectacular breakthrough, surpassing Ho Chi Minh City to lead in 2024 with 247,707.2 million tons, recording an absolute growth rate of over 135% compared to 2017. Other localities, such as Nghe An and Ninh Binh, also demonstrated strong transformations as transport speeds accelerated after 2021; specifically, Ninh Binh surged from 49,133.6 to 129,008 million tons, a nearly 2.6-fold increase over seven years.

The primary drivers behind the dominance of these localities stem from the convergence of three factors: gateway positioning, industrial density, and continuous infrastructure investment. Ho Chi Minh City and Hai Phong leverage their international seaport systems and status as termini for multimodal transport corridors, which optimize long-haul traffic indicators. The explosion in transport volume for Hanoi and neighboring provinces like Ninh Binh reflects the vibrant industrial production and infrastructure development in the Northern region. In particular, the slight decline in Ho Chi Minh City's traffic during 2020–2021 clearly illustrates the sensitivity of major economic centers to the pandemic; however, the rapid recovery immediately thereafter reaffirms the resilience and irreplaceable regulatory role of these leading localities in managing cargo flows.

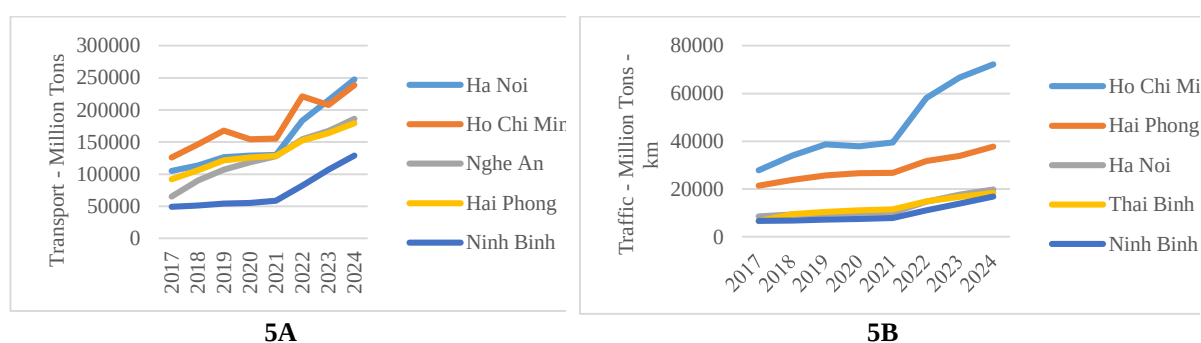


Figure 5A & 5B. Freight transport volume and traffic of the top five leading provinces/cities, 2017–2024

IV. CONCLUSIONS

Reflecting on the 2017–2024 period, Vietnam's transport sector has demonstrated remarkable resilience and sustainable growth momentum despite global economic challenges. The breakthrough in absolute figures across key economic hubs—namely Hanoi, Hai Phong, and Ho Chi Minh City—clearly evidences the effectiveness of concentrated investment in pivotal transport infrastructure. However, the widening disparity between the deltas and the mountainous or Central Highland regions underscores an urgent need for synchronized inter-regional infrastructure to reduce logistics costs and bridge the geo-economic gap.

The trend toward socialization, driven by the expansion of the private sector and the penetration of Foreign Direct Investment (FDI), is reshaping the transport landscape to be more modern and competitive. To sustain this growth trajectory in the future, Vietnam must continue optimizing its modal split, particularly by enhancing maritime and railway traffic capacities to alleviate the burden on road infrastructure. Furthermore, leveraging the strengths of the domestic transport market will be essential to ensuring supply chain security and establishing a foundation for deeper international integration within the new global context.

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