
Transit Function Disruptions of the Panama and Suez Canals and their Impact on Global Shipping and Trade

Submitted 23/04/26, 1st revision 05/05/26, 2nd revision 20/05/26, accepted 30/06/26

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Abstract:

Purpose: The main aim of the research is to identify and classify the various types of disruptions in the transit functions of the Suez and Panama Canals in the period 2023-2025/2026 as well as assessment their economic effects for global trade and shipping. The transport and logistics approach dominates, which the author considered appropriate for the analysis of the functioning of this type of strategic maritime infrastructure facilities of global importance. .

Design/Methodology/Approach: To conduct this data-driven research, the following methods were applied: 1. critical literature analysis, 2 Data mining and analysis, 3. market analysis and 4. comparative analysis.

Findings: The research findings indicate that limited or high-risk access to the Suez and Panama Canals during the period under review resulted in increased ship operating costs for maritime carriers due to extended ship routes (rerouting) and a corresponding increase in greenhouse gas emissions. Furthermore, significant supply chain disruptions resulted in increased global logistics costs and a simultaneous decline in the logistical efficiency of handling sea trade volumes. This resulted in significant increases in freight rates and other transport cost components, much of which was passed on to shippers and consumers.

Practical Implications: The detailed research has shown: 1/ wide range of negative effects that occurred during the disruptions, and their distribution within the global supply chains, 2/ the effectiveness of shipowners' strategies and operational management during the crisis.

Originality/Value: The conducted research clearly indicates that any kind of disruptions in choke points of strategic importance for global shipping and trade such as the Panama and Suez Canals, generating rapid surge in global transport and logistics costs, should to be not only monitored but als smoothly managed by international organizations (WTO, IMO, UNCTAD, EC), while strictly coordinated with relevant representatives of the affected global maritime business sector. Otherwise any efforts can't bring the widely expected results.

Keywords: Suez and Panama Canals' disruption, rerouting, direct and indirect costs of disruptions, crisis management, shipping companies' operational strategies.

JEL classification: F51, L91, O54, R48.

Paper Type: Research article.

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1. Introduction

Global maritime shipping handles ca. 82% of the world trade volume, i.e. 12.7 bn tons of cargo and accounts for over 92% of total transport performance (UNCTAD, 2025). The logistically smooth and efficient transport of global trade goods depends on free, safe, secure and undisruptive navigational access to strategically most important sea routes and passages such as straits, canals, etc.

However, the accessibility to the main maritime shipping routes, such as Suez and Panama Canals or Strait of Hormuz, which are of strategic importance for global trade and shipping has been significantly limited since 2023. They have been affected by huge disruptions in performing their key transit functions for ships, what have caused significant transport, logistics and economic effects within the global supply chains.

The ongoing turbulences and disruptions were caused by geopolitical instability in individual regions of the world, military threats, trade and economic tensions as well climatic and oceanographic, etc. All of them generated serious navigational perturbances for vessels passing these sea routes.

Furthermore, such turbulences have been gradually transferred on other links of the global supply chains. It was precisely this type of geopolitical, climatic and weather disruptions as well as military activities which have caused very severe restrictions on access to the Suez Canal (war in the Middle East and Houthi's missile attacks on ships passing it) and Panama Canal (hydrological drought).

They have generated shockwaves across both regional and global supply chains, posing new, unpredictable, long lasting burdensome and complex challenges for shipping and global trade. Additionally, they have caused wide spreading economic and logistics turbulences affecting the world's economies and their communities (UNCTAD, 2024a; 2025a). To great extent, they were enforced by ships rerouting, i.e. necessary use longer, time and money consuming routes.

The aim of such defined subject of research is to assess the economic effects, however, mainly transport and logistics ones, caused by disruptions of the Panama and Suez Canals' transit functions in the period 2023-2025/2026. The conducted study, based on credible international sources and data, points out numerous wider effects caused by long lasted operational disfunctions of these key global marine infrastructure facilities for shipowners, shippers, forwarders, sea ports and other participants of the global supply chains.

2. Methodology and Literature

Aiming at meeting the set research objective and assessing properly the global economic and particularly trade, transport and logistics negative effects caused by

long lasting turbulences affected both Suez and Panama Canals, there were used a number of both quantitative and qualitative research methods and techniques. As a part of the methodological triangulation formula, there were applied such methods and techniques as: critical literature analysis, factor analysis (FA) and mining of data obtained from many reports and studies issued by leading domestic and international organizations as well as institutes focusing on global economic as well as transport and logistics issues concerning the subject under scrutiny. The market and comparative analysis (MA, CA) has been imposed, too.

Examining the reasons and multidimensional results of the relatively long lasted disruptions and turbulences which have affected both Suez and Panama Canals, it was necessary to use available and trustworthy sources and databases of leading international organizations such as UNCTAD, WTO, UE as well as World Shipping Council, International Chamber of Shipping and ECSA.

Moreover, very useful and inspiring were the annual reports and financial statements of Suez and Panama Canals authorities as well as official documents of the Egyptian and Panamanian governments concerning this issues.

Transport, logistics and maritime information portals and platform such as: UN COMTRADE database on international trade, Pole Star Global Platform, IMO portal MDA (Maritime Domain Awareness, CBS' ShippingWatch News, Upply Platform, Maritime portal Gospodarka Morska, Port Technology International, etc., were also a valuable and fruitful sources of information and data. It is also worth mentioning here interesting sources, including expert opinions, published on portals and websites of such institutions as: Baker McKenzie, Clarksons Research, Container News, Container xChange and Xeneta.

They facilitated access to various types of documents relating to the researched issues and expert opinions that were carried out by research institutes at that time.

Farther, a thorough analysis of several publications on selected aspects of the issue under study was also carried out. They allowed for a deeper insight into the numerous direct and indirect consequences of existing turbulences and the directions of action necessary to limit the negative effects that arose for the global shipping, trade sector and the national economies affected by these kind of disruptions.

The effects on world trade and its selected commodities transported by sea have been presented partially, i.e., by the mid of 2023 by Aguiar *et al.* (2023). The wider effects resulting also from the US trade and tariffs war, were in turn, presented by Conteduca *et al* (2025). Transport effects, in particular those related to global port congestions, were presented with extensive commentary by Shkuro (2025).

The increasing effects of disruptions, exacerbated by the existed constraints in the Panama Canal, were presented by Kramek (2025). By using the example of the

surge in freight rates in the liquid bulk cargo market, there were pointed economic effects caused by rerouting. The military conflict in the Persian Gulf in 2026 has created another significant threat to global supply chains, generating additional disruptions in the Suez and Panama Canals (WSC, 2026). These issues, however, will be developed in the next author's paper.

3. Suez and Panama Canals under the Limited Accessibility for Global Shipping and Trade: An Analytical Approach

Aside from the Panama Canal, the Suez Canal plays a crucial role as a trade and transport route between Europe and Asia, enabling ship operators to avoid having to take a longer route around Africa, i.e. via the Cape of Good Hope. As a result, the journey distance from the Arabian Sea to London may be shortened by ca. 8,851 km (5,500 miles), generating significant time and operating costs' savings for all supply chain participants.

With the canal's relatively high daily capacity, 18,830 ships (an average of 52 per day) with a total tonnage of 1.17 billion tonnes in terms of gross tonnage (GT) transited this route in 2020, the largest shares of vessels using the canal during that period were container ships (50% – in total, over 30% of these vessels use the canal), tankers (18%), bulk carriers (11%), and LNG tankers (8%) (ICS, 2022; UNCTAD, 2021).

This means that statistically, every fourth registered ship with a capacity above 100 GT (their total number exceeded 100,000 in May 2021) used the Suez Canal passage, and their total annual capacity amounted to 94% of the capacity of the world merchant fleet (1.4 tn GT in May 2021).

In the following years, the number of ships transiting the Suez Canal increased systematically, and at the peak period after the pandemic in 2023, 26,000 vessels passed through the canal. The intensity of ship traffic monthly in the Suez Canal and in the region was very high (Pol Star Global, 2024).

However, due to ongoing military operations in the Red Sea region and frequent attacks on ships passing through Suez Canal since November 2023, the number of ships transiting via canal began to gradually decrease, and after 11-12 month it hit rock bottom in 2024. It plummeted by more than 50% (Euronews, 2025). It was only 13,213 vessels.

The available data shows that by mid-October 2024, the average of 33 transits per day was 57% below its previous peak, 55% lower than one year ago and just 4% above the lowest recorded four-week average (WTO, 2023; UNCTAD, 2024b). This means that in the worst year ever, i.e. 2024, only 25-35 ships per day passed through the canal, compared to an average of 75-80 before November 2023.

As the result, the Suez Canal operated below normal capacity, i.e. at around 70 per cent below average tonnage transit levels in 2023 (UNCTAD, 2025a; Kamiński, 2026).

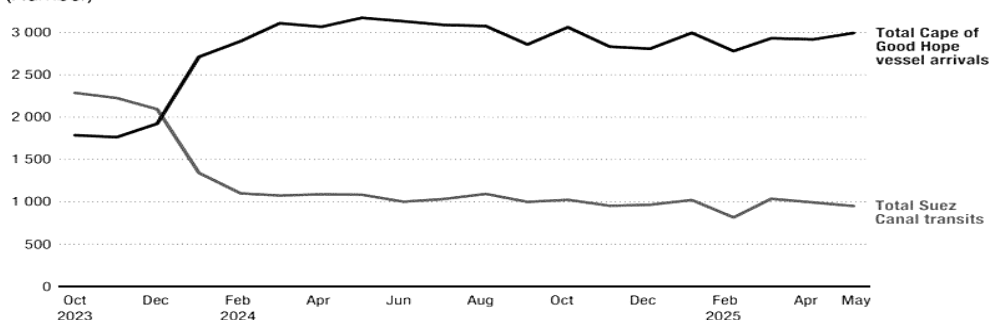
The decline in the number of ships transiting through the Suez Canal had a significant impact on the volume and value of global trade passing through this transcontinental corridor. Based on Suez Canal Authority's data, it can be estimated that in 2023, in the absence of significant disruptions of the canal's transit functions, an average of over 20.9 million TEUs were moved through the canal annually, representing ca. 32% of the daily seaborne container traffic, as well as 8% of global crude oil transport and approximately 23% of LNG SCA, 2025; BBC World Service, 2024-2025).

Based on UNCTAD and WTO estimates, it can be stated that on average, 12 to 15% of the volume of the global maritime trade was transported through this seaway in the early 1920s. In turn, based on Lloyd's List analyses, the value of goods transported through the Suez Canal just before the crisis averaged approximately \$10.4 billion per day (\$6.3 billion westbound and \$4.1 billion eastbound) (UNCTAD, 2025b; WTO, 2023).

On this basis, it can be estimated that in 2023, goods with a total value of ca. 19% of global trade were still moving through this seaway annually. These figures were reduced on average by over 60% in 2024 (Pol Star Global, 2025; UN MOMTRADE, 2025).

In 2025 and early 2026, traffic was expected to increase to 50 and even 60 ships, giving the canal authority and the global trade and transport sectors hope for a gradual return to pre-crisis conditions. However, the still ongoing uncertainty around safe navigation in the Red Sea compounds these issues. Shipping companies continued to avoid the Suez Canal, with tonnage transit levels by early May 2025 still around 70 per cent below the 2023 average (Figure 1).

Figure 1. *Monthly ship transits and arrivals for the Suez Canal and Cape of Good Hope in the period October 2023 – May 2025*
(Number)



Source: (UNCTAD, 2025a; Pol Star Global, 2025; UNCTAD, 2025b).

Reports developed by UNCTAD indicate that Suez Canal disruptions, have caused a 42% decrease in transits and the fall in weekly container capacity by 67%, what at the same time seriously disrupted global trade, destabilizing global supply chains in relation Europe-Middle and Far East (UNCTAD, 2024a; 2025b). Rerouting around the Cape of Good Hope, as an only real option to avoid Red Sea) turbulences, has surged by 89% at that time (Figure 1). Consequently, there were driven transit times, freight rates, direct and indirect costs as well as ships emissions.

Currently, distance-adjusted demand, boosted by rerouting, is expected to ease if the geopolitical tensions affecting the Red Sea as a important shipping route fade away. Unfortunately, the Iranian crisis and the Strait of Hormuz lockdown delayed this significantly (Klemenic and Chamberlain, 2026; IMO MDA, 2025). As of April 2026, the Suez Canal is experiencing significant traffic declines, with a 23.1% drop in the 2024/2025 fiscal year due to security concerns, resulting in the cancellation of rebates for large container ships and a push for traffic recovery to be delayed until the second half of 2026 (Bruno, 2026; ECSA, 2026).

Only from the second half of 2026 will the number of ships using the canal begin to increase, and this also applies to container ships of the global largest shipowners (Schlüter and Jacobsen, 2026). It marks another step in their operational strategies to gradual return to the trans-Suez corridor, which they regard as the fastest, most efficient, and most sustainable link between Asia, the Middle East, and the West (Chien and Xiao, 2025; De Ricqlès, 2026).

The Panama Canal, in turn, being a key ocean route, currently handles ca. 5,5 -6,4% of global maritime trade. It connects the Atlantic and Pacific Oceans, shortening the distance between two ports, i.e., Cristobal (Atlantic Ocean) and Balboa (Pacific Ocean) by ca. 13,000 km. It is 82 kilometers long and is managed by the state-owned company, the Panama Canal Authority. Its daily maximum capacity is around 36 to 40 transits (Newsroom Panama, 2025).

However, during the El Niño event in 2023, it was grappled with an intense drought. As water levels in the canal plummeted, shipping capacity was severely constrained and in a critical period daily transits were temporarily reduced even to 22. Ships had to sail with a maximum draft that was 12% below normal levels (WSIP, 2023). A reduction of over 53% in the number of ships passing through the Panama Canal due to exceptionally low water levels has created a huge queue of ships waiting to cross to the Atlantic.

Since August 2023, when water levels in the canal dropped dramatically, as many as 200 ships have been stuck in traffic jams on both sides of the canal, and on September, there were 130. This congestion was caused by restrictions. Instead of 40 ships per day, only 32 passed, and their draft could not exceed 13.41 meters (43 ft) instead of 15.24 meters (50 ft). This meant that ships took longer to sail and carried about 20% less cargo (UNCTAD, 2024b; Platten, 2025).

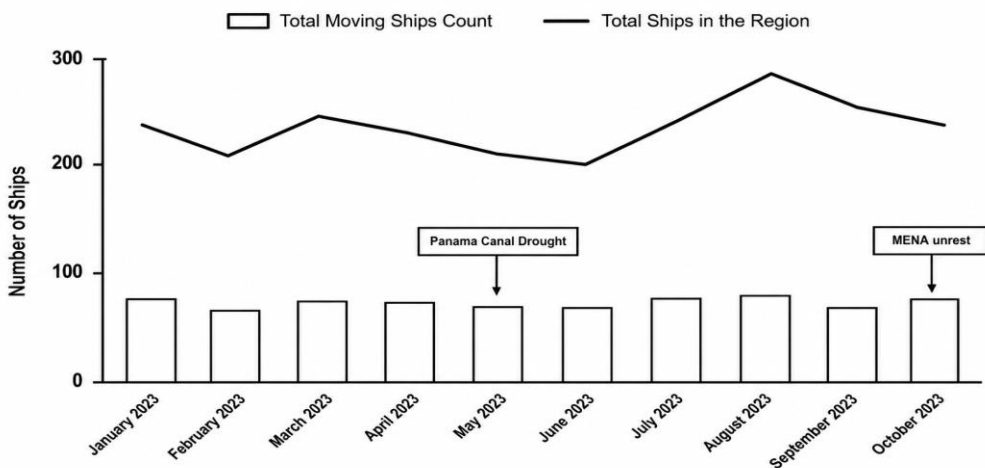
The average transit time increased to about 9 days. Container ships accounted for the largest share, i.e., ca. 20% of the ships transiting the canal during this time, as the Panama Canal is the first-choice route for 57.5% of all container ships sailing from Asia to the US East Coast (Kramek, 2025).

The longest waits were for cargo ships (about 13 days), gas carriers (over 11 days), tankers (about 10 days), and bulk carriers (over 8 days). Container ships passed through the canal virtually without queuing, as they paid a special surcharge to skip the line. The standard cost of transiting the Panama Canal was \$60,000 (Newsroom Panama, 2025).

On the official exchange, prices for bypassing the queue reached around \$800,000, accounted for around \$2.4 million on September 1, 2023, and then returning to \$700,000-800,000 after September 2023 (Conteduca *et al*, 2025; ShippingWatch, 2026; UNCTAD, 2024b). They constituted additional costs of disruptions to the flow of traffic in the channel and, as logistics costs of the supply chain based on individual valuations of the time factor in the transport process, reflected the relationship between time and costs resulting from disruptions.

The dysfunctions of the Panama Canal represented above are illustrated in Figure 2. It shows that since the onset of the drought in May 2023, there's been a noticeable decline in the total number of ships traversing the Panama Canal. This trend was accompanied by a spike in the number of ships within the region, reflecting constrained throughput and reduced movement out of the area (Figure 2). Some leading global container lines, e.g. Maersk, have been even redirected cargo to the railway line running parallel to the canal at that time (Schlueter and Jacobse, 2026).

Figure 2. Total monthly ships in the region and total monthly moving ships within the Panama Canal in the period January-October 2023



Source: Pole Star Global, 2024; PCA, 2026; UNCTAD, 2024b.

Following the ongoing disruptions caused by drought within the Panama Canal, some ship operators opted for a ten-day detour via the Suez Canal on their voyages between Asia and the US East Coast. Hence, as congestion in the Panama Canal grows, the significance of the Suez Canal for global trade was likewise amplified.

This is evident in the data, which indicates an increase in the total number of ships moving through the Suez Canal and the total number of ships in the region since the Panama Canal drought (Figure 3).

Figure 3. Number of transits per day, 28 days rolling average, October 2018–October 2024



Source: UNCTAD, 2024a.

However, in contrast to Suez Canal, Panama Canal traffic was showing signs of recovery in 2024. By mid-October 2024, the four-week average of 30 transits per day was 30% below the previous peak and only 4% lower than one year ago. Importantly, it was already 40% above the lowest level of transits recorded in early 2024. In 2025 a growing number of tankers as well as container ships pushed Panama Canal toward full capacity, i.e. 36-40 transits/day and in mid-2026 the channel is operating close to its upper limit (Berg-Munch, 2026; PCA, 2026).

Ship transits through the Panama Canal have risen 8% in 2026 so far compared to 2025, reaching a daily average of 38. According to BIMCO transits of tankers have risen 16% year-over-year as US energy exports have surged to the Pacific region (Gouveia, 2025). As a result, the waiting time before entering the canal has risen to nearly two days (an average of 47 hours), i.e. about 50% higher than a year ago.

Therefore, bulk and oil tankers are bidding on so-called last-minute slots where increased demand has driven up auction prices and extended wait times (De Ricqlès, 2026). At the same time, some shipping companies have begun rerouting, taking longer routes via the Cape of Good Hope or Cape Horn to avoid delays and high

canal fees. These are symptoms of the second, in fact, secondary phase of disruptions, which, in a period of ongoing geopolitical turbulence affecting global supply chains, are fueling a spiral of rising transit costs through the Panama Canal.

4. Research Results and Discussion

The long lasting disruptions affecting Suez and Panama Canals have strained key global supply chains, driving up direct and indirect costs not only shippers and ship operators but also other parties involved. They hit hardly Egtiptian and Panamanian economies too, as well as many other vulnerable ones, generating there significant increase in consumer prices and stimulating inflationary preasure (Kramek, 2025; UNCTAD, 2025b). Besides, such deep turbulences enforced ship operators towards rerouting around the Africa's Cape of Good Hope and they has surged by 89% compared to pre crisis 2023 period. This keeps in fact goods moving by sea, but adds huge additional costs, as well as delivery delays and GHG emissions.

Every round trip between Asia and Europe drives significantly ships fuel consumption, increasing the cost up to US\$ 1.0 ml in extra fuel usage, adding at the same time approximately 14-25 days to voyage time (Chien and Xiao, 2025). Consequently, it generates a significant surge in ships' emissions. For example, it can be pointed out that a typical container ship carrying 20,000–24,000 TEUs on the Far East-Europe route, when diverting around Africa instead of using the Suez Canal, incurs an additional \$400,000 in emissions costs per voyage under the EU's ETS (IMO MDA, 2025; Kamiński, 2026).

Moreover, longer routes have led not only to increase in fuel consumption and GHG emission costs incurred by ship operators but also other costs components, such as crew wages, insurance premiums and piracy risks. All of them have caused significant increase in their overall operational costs, pressing to heighten freight rates with the aim to transfer them in total or partially on shippers and finally consumers of goods carried by sea.

The surge of freight rates in critical period of ongoing disruptions accounted even for over 100%—300% in some shipping routes, driving up seriously transport and logistics costs within the global supply chains, as well as initiating threat of inflation and serious risks of increases of consumers prices in many countries. And so, the crisis in the Red Sea caused an increase in spot container freight rates, mainly in 2024 with partial relief by year-end. What is characteristic, container spot freight rates (based on SCFI) recorded their peak around midyear 2024 at levels not seen since the COVID-19 disruptions of 2021–2022 (Pol Star Global, 2025; WSC, 2026).

Furthemore, due to extended voyage durations, there was a substantial increase in global ton-miles, estimated at 4.2% in 2023 and 17% in 2024, what along with a significant rise in operating costs, particularly time charter and fuel costs, despite reduced Suez Canal dues, caused an unprecedented increase in direct and indirect

logistics costs in global supply chains (UNCTAD, 2025a). In addition to the impact of disrupted shipping operations in the Red Sea, global cargo volumes grew more than anticipated at that time, what lead to further constricting vessel availability and maintaining high freight rates.

By mid-2024, rerouting away from the Red Sea and Panama Canal increased global vessel demand by 3% and container ship demand by 12% (UNCTAD, 2026; Platten, 2025). Port hubs like Singapore and major Mediterranean ports were struggling with rising demand for transshipment services, adding to congestion in many leading container ports, growing delays in delivery and stepping up disruptions of global supply chains (Skhuro, 2025; Bruno, 2026).

A market analysis of supply and demand dynamics in the global container shipping, shows overall growth in demand of 7.1% in TEUs in 2024. However, on the supply side, global container shipping capacity grew by 10.1% in 2024, equivalent to nearly 3 ml TEUs (UNCTAD, 2025a; Pol Star Global, 2024). It was the highest annual growth since 2008.

However, under the circumstances that prevailed at that time, much of the new tonnage was absorbed by increased demand from longer voyages due to Red Sea rerouting and broader economic activity (Port Technology International, 2026). Consequently, the additional capacity did not immediately drive rates lower; instead, it continued to support elevated spot freight rates. As a result, by the end of 2024, spot container freight rates eased from midyear peaks but stayed well above levels observed prior to the onset of the Red Sea crisis in December 2023 (UNCTAD, 2026; UN COMTRADE, 2025).

5. Conclusions

Due to the strategic importance of the Suez and Panama Canals for global trade as well as shipping and sea ports, and thus the smooth, efficient and constant activity of global supply chains and consequently, the world economy, it is necessary to keep uninterrupted all their operational functions moving.

However, for the reasons driven by geopolitical and military tensions (Suez Canal) and climate-related risks, causing hydrological drought (Panama Canal), this was impossible in 2023-2025/2026. Both of the world's most vital maritime infrastructure choke points experienced severe challenges at that time. However, regardless of the primery reasons, the effects of the occurring perturbations were essentially the same in nature and had a similar scope, i.e., global.

The results of the analysis clearly indicate that these two choke points of global maritime infrastructure are interdependent. This means that reduced capacity in one canal leads to increased activity in the other. However, it should be emphasized that, given the unique challenges of each, international trade and maritime shipping are

under multiple pressures (Aguiar *et al*, 2026; Conteduca *et al*, 2025). Notwithstanding, unlike the Suez Canal, the Panama Canal currently offers no viable alternative, both in terms of transportation i.e., an alternative, safe, acceptable in economic and logistics terms routes, i.e., in terms of time and global logistics cost (Kriou, 2026; Platten, 2025).

The widely spreading disruptions have harmfully affected the whole global shipping and trade and particularly impacted the Euro-Asian regions and their economies. As a result, the cumulative disruptions' results havily affected other links of global supply chains, mainly ports and seaport terminals.

Destabilized port connectivity network, disruptive sailing schedule and consequently, delays to shipping frequency, drop in reliability (reliability index even below 65%), caused serious port congestions, driving up significantly dwell time and port costs. As a result, key segments of global logistics environment have been affected by such deep disturbances which gradually also become chronic, not episodic, as it was earlier.

Consequently, all these disruptive factors have already partially reshaped the global supply chains and maritime trade patterns. Although the volume of maritime trade slightly expanded in 2024 by 2,2% compared to 2023, its dynamics was a little bit lower, i.e., below the average recorded over the 20 years from 2003 to 2023 (2.9%).

However, one tonne of world trade goods transported by sea currently covers on average a much longer distance than it was in 2018, increasing significantly the level of transport intensity of the global shipping (UNCTAD, 2025a; Pol Star Global, 2024). As security concerns redraw the map of global shipping, the average voyage haul having increased from 4,831 Mm in 2018, to 5,245 Mm in 2024.

This means that as a result of disruptions of the Panama and Suez Canals transit functions, destabilizing the flow of goods in world trade, seaborne trade in ton-miles increased by 5.9% in 2024 on 2023, i.e., close to three times the increase in the volume of maritime trade (IMO MDA, 2025; BBC Word Service, 2025). It turned out, that distance is no longer determined only by geography, but more and more by geoeconomics and geopolitics.

References:

- Aguiar, M., Amador, M., Fitzgerald, D. 2026. Tariff Wars and Net Foreign Assets.
<https://www.nber.org/system/files>.
- BBC World Service. 2025. Shipping under disruptions. <https://www.bbc.com/news/world>.
- Berg-Munch, D.L. 2026. A surge of tankers push Panama Canal toward full capacity.
<https://shippingwatch.com/carriers>.
- Bruno, M. 2026. Suez Canal cancels rebate for large boxships; Port Technology International. <https://www.porttechnology.org/suez-canal-cancels-rebate>.

- Chien, W.Yu, Xiao, Y. 2025. Strategic Trade Corridors: The Suez Canal and Emerging Maritime and Overland Alternatives in Global Supply Chains. *International Journal of Business & Management Studies*. <https://ijbms.net/assets/files/1758594021>.
- Conteduca, F.P. Mancini, M., Borin, A. 2025. Roaring tariffs: The global impact of the 2025 US trade war. *International Trade*. <https://cepr.org/voxeu>.
- De Ricqlès, J. 2026. Rethinking shipping routes to avoid hotspots. <https://market-insights.upply.com>.
- ECSA. 2026. The economic value of European shipping. <https://ecsa.eu/wp-content> <https://ecsa.eu/library>.
- Euronews. 2025. Egypt's Suez Canal revenue fell sharply in 2024 on regional tensions. <https://www.euronews.com/news>.
- Gouveia, F. 2025. A surge of tankers push Panama Canal toward full capacity. BIMCO. <https://www.bimco.org/news-insights/market-analysis/shipping>.
- ICS. 2022. Suez Canal blockade demonstrates just how much global supply chains rely on shipping. <https://www.ics-shipping.org/publications>.
- IMO MDA. 2025. Maritime Domain Awareness; AI could help reduce global commercial shipping CO2 emissions by more than 47 million tonnes per year. <https://imo.org/maritime-domain-awareness.aspx>.
- Kamiński, R. 2026. Ruch przez Kanał Sueski odbywa się w sposób niezakłócony. Zarząd liczy jednak straty. <https://gospodarkamorska.pl>.
- Kerious, A. 2026. China-EU rail freight volumes fell again in 2025. <https://market-insights.upply.com/en/china-eu-rail-freight-volumes>.
- Klemencic, S., Chamberlain, R. 2026. Dire Straits: The Hidden Supply Chains of the Strait of Hormuz. BRG. <https://www.thinkbrg.com/insights/publications>.
- Kramek, J. 2025. Examining the Panama Canal and Its Impact on U.S. Trade and National Security. WSC. <https://www.commerce.senate.gov>.
- Newsroom Panama. 2025. The Suez Canal's Traffic has collapsed while the Panama Canal's traffic rose. <https://newsroompanama.com/2025/07/07>.
- PCA. 2026. Annual Report 2025. Panama Canal. <https://pancanal.com/wp-content>.
- Platten, G. 2025. Request for Comments Concerning Order of Investigation into Transit Constraints at International Maritime Chokepoints. Docket ID: FMC-2025-0005. <https://www.ics-shipping.org/wp-content>.
- Pole Star Global. 2024. Challenges in the Red Sea and Suez Canal: Exclusive Insights. Report April 2024. <https://www.polestarglobal.com/resources/red-sea>.
- Pole Star Global. 2025. Vessel movement within the Suez Canal and the Red Sea region. Maritime Domain Awareness (MDA) platform. <https://www.polestarglobal.com>.
- Port Technology International. 2026. Panama Canal terminal row disrupts port operations. <https://www.porttechnology.org/panama-canal-terminal-row>.
- SCA. 2025. Egypt GDP. Suez Canal data was reported at 43,861,500 EGP mn in Dec. 2024. <https://www.suezcanal.gov.eg>.
- Schlüter Jacobsen, J. 2026. Maersk widens Red Sea return with additional Suez service. ShippingWatch. <https://shippingwatch.com/Ports/article>.
- Shipping Watch. 2026. More nations side with Panama in ports dispute with China. https://shippingwatch.com/Ports/article19245341.ece?utm_campaign.
- Skhuro, S. 2025. Delays Increase by 300% in World Ports: Key Insights About the Summer Peak Collapse. Shipping & Logistics. <https://www.searates.com>.
- UN COMTRADE. 2025. Database on international trade. calculations, based on the GTAP version 11. UNCTAD's image obtained from United Nations COMTRADE database on International Trade. <https://comtradeplus.un.org>.

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- UNCTAD. 2021. Review of Maritime Transport 2020, UNCTAD Secretariat, New York–Geneva. <https://unctad.org>.
- UNCTAD. 2024a. Canal traffic plummets: Suez stays down, Panama shows signs of recovery. Web and social media. <https://unctad.org/publication/trade-and-development-report>.
- UNCTAD. 2025a. Review of Maritime Transport 2024. <https://unctad.org/system>.
- UNCTAD. 2024b. Suez and Panama Canal disruptions threaten global trade and development. <https://unctad.org/news/suez-and-panama-canal-disruptions>.
- UNCTAD. 2025b. UN Trade and Development. Web and social media. <https://unctad.org>.
- UNCTAD. 2026. Maritime summit. <https://unctad.org/news/maritime-summit-unctad-highlights-impact-disruptions>.
- World Shipping Council. 2026. WSC statement on agreement to reopen Strait of Hormuz. <https://www.worldshipping.org/news/wsc-statement>.
- WSIP. 2023. Zator na Kanale Panamskim. Jakie to przyniesie skutki? <https://wsip.pl/blog>.
- WTO. 2023. World Trade Statistical Review 2023, Geneva. https://www.wto.org/res_e/statis.