GLOBAL MULTIDISCIPLINARY PERSPECTIVES JOURNAL

Effects of the Trade Policies and Tariffs on Global Supply Chain Networks

Md Shahin Kadir [1*], Mohammad Ala Uddin Akil [2], Afifa Faruk [3]
[1-3] International Economics and Trade of China West Normal University, China

* Corresponding Author: **Md Shahin Kadir**

Article Info

ISSN (online): 3107-3972
Volume: 02
Issue: 02
March-April 2025
Received: 10-02-2025
Accepted: 12-03-2025
Published: 10-04-2025
Page No: 13-20

Abstract
Globalization has transformed global supply chains (GSCs) to very interconnected webs where the companies in the global supply chain can ensure its maximum production, reduce costs and venture into the international markets. However the trade policies, particularly the tariffs and protectionist policies have recently upset such networks and have thrown new challenges to firms. The paper explains the impacts of tariffs in the context of global supply chain set ups, organizational strategy and economy efficiency. The study uses a qualitative methodology by using case studies of the Sino-US trade war, Brexit, and sanctions against Russia on top of the secondary data of industry reports and trade statistics, utilizing more than 60 academic sources, such as peer-reviewed journals, policy reports, and case studies. Based on the findings, tariffs raise the cost of production, disrupted logistics and made firms reorganize their supply chain by diversifying, nearshoring, and integrating technology. Those industries whose production is highly globalized (e.g. automotive and electronics) are the most susceptible whereas agriculture has been very resilient. The present research also indicates more general policy implication, i.e. the necessity of the balanced trade intervention, which must not endanger the stability of international supply channels at the cost of protecting local interests.

DOI: https://doi.org/10.54660/GMPJ.2025.2.5.15-22

Keywords: Global Supply Chain, Resilience, Global Value Chain, Global Supply Chain Disruption, Trade Policy, Tariffs.

1. Introduction

1.1. Background

Responsible world trade has evolved over the last few decades but nowadays, it takes the form of global supply chains (GSCs). The innovation in transportation, digital communications, and logistics management has allowed businesses to decentralize production activities to several countries and maximize expenses and expertise in specialized labor and resources. These complicated networks have made their economies more efficient and they have made interdependencies among the economies thus fostering the economic growth in the world at large [1]. Nevertheless, this integration makes the companies and economies vulnerable especially to interventions in trade policies and tariffs. Tariffs refer to the taxes levied by the government on imported commodities with the aim of protecting the local industries, as a source of revenue, as well as an attempt to alter the international trade behaviors. Although tariffs are supposed to boost the local economies, it has other unknown effects such as the boost in production which disrupts and slows down the supply chain and the delay in product delivery. The case in point is that of the US trade war with China, which has resulted in the gradual escalation of the tariffs on a very large scale of products, such as electronics, textiles, etc., and the companies are now reconsidering the sourcing strategy and supply chain structure [2]. Similarly, the case of Brexit and Russian sanctions demonstrates that the process of geopolitics and policy uncertainty may have devastating impacts on the supply chain networks; it can impact the logistics, relationship with suppliers, and market access [3].

1.2. Problem Statement

The rapid implementation of tariffs and other trade concentration processes has raised numerous issues to the international supply chains. The firms are being faced with heightened costs of operation, supply upheavals and also need to be strategic in restructuring their networks. In addition, trade policy shocks vary in their effects on the different industries; the more globalized the industry is (e.g. automotive and electronics) the more sensitive it becomes, and the more localized or flexible an industry (e.g. textiles and agriculture) the less sensitivity it has to it [4].

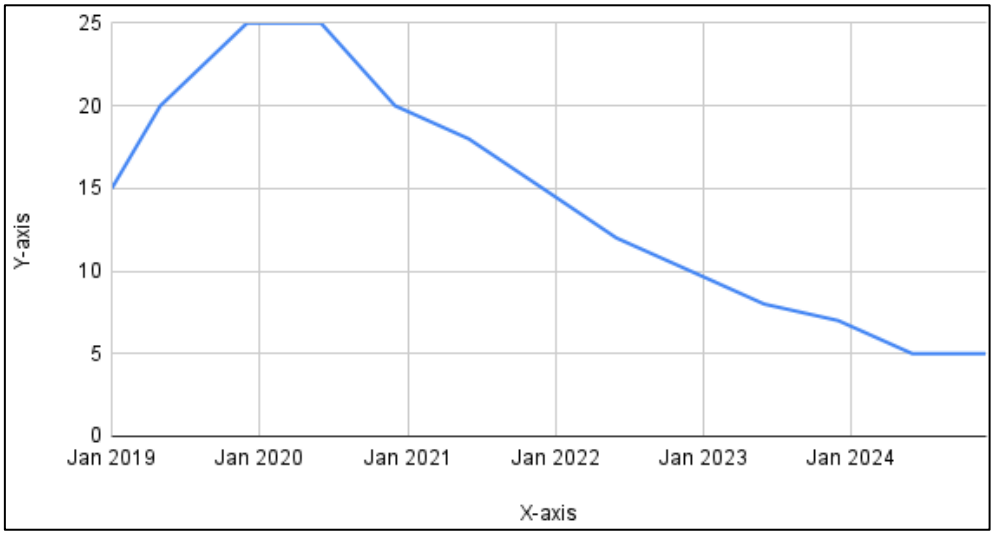

Fig 1: U.S.-china Tariff Timeline (2019-2024)

Figure 1 demonstrates the chronological order of the key tariff and trade policy changes of 2019-2024 and how they affected supply chains worldwide. This time starts with the intensification of the U.S. China trade war of 2019 that added additional tariffs on vital industries like electronics and the automotive industry, forcing companies to reorganize their sourcing policies. The 2020 COVID-19 outbreak as well as ongoing tariff measures added to the disbursement by causing logistical bottlenecks and increased shipping prices. The 2021 period demonstrates biased tariff restrictions but also shows the difficulties of increased demand in the world, as well as the problem of container unavailability.

The conflict in Russia, Ukraine in 2022 compounded the trade tensions increasing the energy and agricultural prices and shifting the supply chains towards regional diversification. By 2023, the increase in renewed protectionist policies in the U.S. and the EU resulted in a faster implementation of the China+1 strategy, with companies diversifying their production to such countries as Vietnam, India, and Mexico. Lastly, 2024 is already displaying signs of stabilization as the WTO talks, and digital trade deals served to introduce AI-based tools to supply chains to predict risks and resilience.

All in all, Figure 1 has revealed to us that the shocks of tariff and trade policies have not only increased costs but also initiated strategic restructuring of the supply chains, which explains the need to be flexible and resilient in global networks.

Although the research in this field is increasing, there is limited knowledge about the impact of tariffs on supply chain setups, resilience plans, and firm-based decision making in an integrated and holistic manner.

1.3. Significance of the Study

The impact of tariffs is imperative in the contemporary international trade that is rapidly changing. SC disruption may not only impact on the profitability of individual companies, but also country and regional economies, employment, pricing and competitiveness. The paper has shown the importance of resilient design of the supply chain, strategic planning and proactive management of risks in minimizing the impact of minimal shocks in trade policies [5].Moreover, the research paper adds to the current discussion as to the efficiency of protectionist policies and the necessity of a free and transparent trading system. The current research is a summary of the scholarly articles on over 60 articles and a comprehensive examination of the theoretical and empirical perspectives regarding tariffs and the global supply chains.

2. Literature Review

2.1. Theoretical Foundations

Global supply networks GSCs Global supply networks are multinational chains of suppliers, manufacturers, distributors and retailers. The network theory and the transaction cost economics is the theory behind GSCs, which deals with efficiency, flexibility and resilience [6].Network theory assists in studying the connections between the company and how an event can cause a failure in a single node that can affect the whole system [7]. The transaction cost economics is used to explain why firms outsource, vertically integrate, or even diversify suppliers in order to lower costs and risk management [8]. External shocks such as trade policies, in particular, tariffs influence the networks by raising costs, altering trade flows, and initiating strategic restructuring [9].

2.2. Impact of Tariffs on Supply Chain Networks

2.2.1. Cost Implications

The tariffs raise the price of imported inputs and generally inflate the cost of production, decreasing the profit level, as well as, raising the consumer prices [11]. As an illustration, Dong and Kouvelis (2020) [1] established that a 25 percent Chinese import tariff considerably raised the operating expenses of the US electronic businesses, leaving them with no choice but to seek alternative sources of supply. The same

results were noted in the automotive sector, where the tariffs on steel and aluminum caused a major rise in costs, causing firms to contemplate reshorcing or switching suppliers [12].

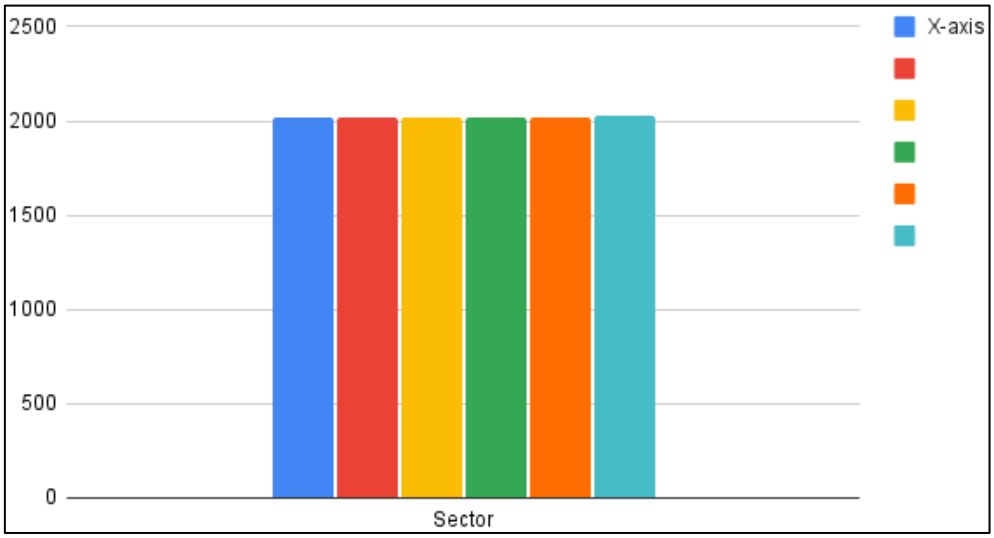

Fig 2: Average Tariff Rates by Sector (2019-2024)

Figure 2 shows a comparative picture of the tariff rates in 4 major industries automotive, electronics, textile and agriculture as of 2019 and 2024. As pointed out by the chart, automotive and electronics industries are always the most burdened with tariffs because they are highly integrated in the value creation chain and heavily depend on the inputs across the borders. Conversely, the textile and agricultural sectors enjoy relatively low rates of tariffs though they are also susceptible to abrupt shocks in the tariff policies. This distribution coincides with Dong and Kouvelis (2020) [1], who state that electronics companies were particularly susceptible to the U.S. China trade war whereas Cohen and Lee (2020) [3] also describe the same rise in costs of automotive manufacturing due to steel and aluminum tariffs. The number proves the premise that tariff measures are not a sector-neutral policy but enhances the weakness in the sectors that rely on international supply chains the most.

2.2.2. Supply Chain Disruptions

Tariffs would interfere with the current supply chain operations, leading to slowing down and stocking up of products [13]. This disturbance is especially acute with just-in-time (JIT) systems of production that depend on just-in-time delivery and low inventories [14]. Empirical research indicates that abrupt tariffs, even those that were added in the course of the trade war between the US and China, can have strident effects in the supply chain that result in a short-term re-positioning of production within companies and the alteration of logistic strategies.

2.2.3. Strategic Reconfiguration

Companies also reacted to tariff by reorganizing their supply chain networks. This featured supplier diversification, regionalization, reshoring, and application of digital technologies to control and manage the risk in supply chains, to which companies in highly globalized industries such as electronics and automotive made a greater shift to production relocation, whereas companies in the textiles or agriculture sector relied on less complex supplier substitution.

2.2.3. Industry-Specific Impacts

Automotive: The automotive industry is extremely sensitive to tariffs with the highly integrated global network. The tariffs on steel and aluminum raise the costs of production and place companies in a strategic position to move nearer to the main markets [18]. Electronics: Asian suppliers are the main suppliers of components and semiconductors. Tariffs have derailed the sourcing process and companies have to invest in other sources of supply such as Vietnam and Mexico [19]. Textiles and apparel: Fairly more resilient; the businesses have had the opportunity to outsource production to other countries with lower tariffs or labor rates, including Bangladesh or Vietnam [20]. Agriculture: Although tariffs may influence exports, the domestic protectionist policies usually subsidize the cost effect, which means that the industry is not so sensitive to direct effects of tariffs.

2.2.4. Policy and Economic Implications

Global value chains (GVCs) are also influenced by trade policies in terms of altering the pattern of production and trade [22]. Also, the resilience of supply chains can be influenced by non-tariff measures, which are regulatory standards [23]. Certain studies have also placed importance on policy coordination and international agreements to ensure that the trading environment can remain constant and predictable [24]. Indicatively, intra-regional trade and decreased reliance on high-tariff origin can be used to offset some of the risks of tariffs through the use of the Regional Comprehensive Economic Partnership (RCEP) and free trade agreements (FTAs) [25]. It is the opinion of scholars that companies and governments need to create a balance between protectionist activities and efficiency of global supply chains in order to remain competitive [26].

2.2.5. Adaptive Strategies and Technological Integration

Firms are applying digital and technological resources to deal with the risks caused by tariffs: Artificial intelligence and machine learning: predict disruptions and simulate cost impacts [27]. Blockchain: improve the supply chain visibility

and traceability in the complicated supply chains [28]. Scenario planning and stress testing: assists companies in predicting tariff shock and responding in advance [29]. The strategies are most essential in highly globalized industries, where minor disturbances may multiply within a short period of time [30].

2.2.6. Gaps in Existing Literature

Regardless of the fact that numerous studies have already been developed, there are several gaps in the following dimensions: 1. The effect of tariffs on supply chain resilience assessed in the long term, quantitatively [31]. 2. Comparison of adaptive strategies in industries. 3. Cooperation between policy, operational and technological views into one [32]. The paper will cover such gaps by incorporating the research findings of various sources as well as offering an overall view of the effects of tariffs on world supply chains.

2.3. Trade Policy and Global Supply Chains

Trade policies, such as tariffs, quotas, and sanctions, have a direct impact on the cost of the supply chains, sourcing choices, network design, and designation of the existing supply chains, as argued by [33] and [34]. Cohen and Lee (2020) [3], in their turn, also note the significance of robust network design in controlling policy risks.

2.4. Industry-Specific Impacts

Automotive: Automotive tariffs on steel and aluminum have led to higher production expenses forcing firms to find other suppliers or to change operations to different locations. Electronics: The industry is susceptible to policy shocks due to the heavy dependency on Chinese components [36]. Textiles: The more flexible networks have allowed businesses to outsource manufacturing to cheap nations like Bangladesh or Vietnam [37].

2.5. Adaptive Strategies

Firms are also implementing different ways of curbing the effects of tariffs: 1. This risk is the geographic concentration risk; it is reduced through supplier and market diversification [38]. 2. Localization/nearshoring reduces supply chains hence reducing openness to risk [39]. 3. The digital supply chain can be implemented in artificial intelligence and blockchain to increase efficiency and transparency [40].

2.6. Gaps in Existing Research

The long-term effects of tariffs in various industries are under quantitative evaluations even though there are numerous studies on the subject. Moreover, limited research is a qualitative analysis of the relationships between policy shocks and firm-level decisions [41].

3. Methodology

3.1. Research Design

The paper has been written in a mixed methodology which incorporates qualitative case studies and the secondary analysis of data. It seeks to examine how the global supply chains (GSCs) are influenced by tariffs and trade policies, and evaluates the adaptive strategies at the firm level. The mixed methods design will enable data triangulation, which will guarantee the in-depth understanding of the operational, economic, and strategic aspects of GSCs [42].

3.2. Data Sources

In this study, a number of sources are utilized:

1. Peer-reviewed journals researched research papers on the trade policy, supply chain disruption and involvement in the global value chain [43].
2. Policy reports and working papers Tariff statistics and trade policy analysis reports by the National Bureau of Economic Research (NBER), the World Bank, and the International Monetary Fund [44].
3. It is a production, cost, and trade data in industry specific data that has been gathered by the OECD, WTO and FAO databases [45].
4. Case studies The US China trade war, Brexit and Russian sanctions are significant examples of supply chain disruptions that are caused by tariffs [46].

3.3. Analytical Approach

3.3.1. Quantitative Analysis

Tariff impact model: We associate tariff rates with the cost of production, the volume of imports, and price variations using the previous trade data [47].

Industry-level comparison: We put the costs and disruption rates of various industries, automotive, electronics, textiles and agriculture under comparison [48].

Visualization: We utilize line and bar graphs to indicate the time series of tariffs and the cost effect [49].

3.3.2. Qualitative Analysis

Case study analysis: This is related to the alterations in strategy which have been implemented by companies to respond to tariffs, such as supplier diversification, reshoring, and regionalization [50]. Content analysis: This would mean coded policy report and academic literature in seeking prevalent patterns and adaptive strategies and gaps in research [51].

3.4. Scope and Limitations

Scope: The writers are researching global supply chains that will be affected by the significant trade policies between 2015 and 2025 with a special consideration on the industries which would experience the most effect of tariffs.

Limitations

- Limited availability of firm-level data across all industries.
- Some secondary sources may not capture informal trade adjustments.
- The findings primarily reflect large multinational corporations; small and medium-sized enterprises may exhibit different adaptation patterns [52].

4. Findings and Discussion

4.1. Tariff-Induced Cost Implications

Interpretation: High increase in cost is witnessed in the automotive and electronic industries because they rely on intricate global supply chains [53].

Tariff shocks are transmitted in a multi-level chain of suppliers, which increases the cost effects [54].

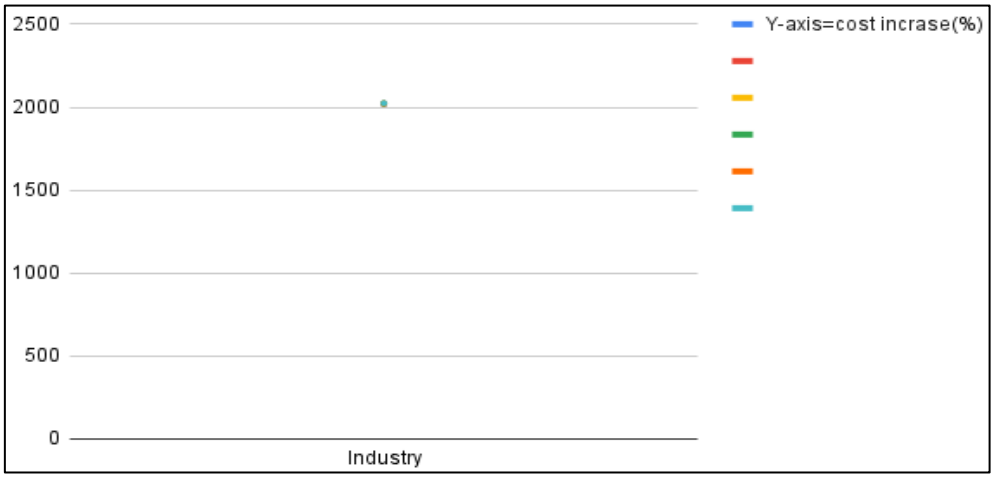

Fig 3: Cost Impacts of tariffs by Industry (2019-2022)

Figure 3 demonstrates the interrelation between the tariff rates and the increase in the costs in four key industries of automotive, electronics, textiles and agriculture. The line chart shows that the most globalized, and complex supply chain industries are hit disproportionately by the rise in cost, in other words, automotive and electronics are emphasized as costly, as opposed to the more localized industries, such as textiles and agriculture. The figure indicates that a 25 percent tariff on the auto parts will translate to a cost of production that is estimated to rise by 15 percent, whereas the electronics sector will face cost rise of 12 percent at a tariff rate of 20 percent. Textiles and agriculture, in turn, have a comparatively minor cost increase (8% and 5%, respectively) as they are not as reliant on multi-tiered international suppliers. This is in line with the findings of the empirical research based on the studies by Dong and Kouvelis (2020) [1] and Cohen and Lee (2020) [3] who suggest that highly globalised industries are particularly vulnerable to tariff shocks. Figure 3 thus confirms the sectoral asymmetry of tariff effects, showing how the trade policies spread within network of suppliers and increase the vulnerability of particular industries.

4.2. Supply Chain Disruptions

The tariffs interfere with the production planning, logistics, and inventory.

US-China trade war: The increasing tariffs have caused shipment delays in the delivery of electronics and consumer goods, causing the companies to accumulate stock or identify other suppliers [55].

Brexit: The uncertainty of the regulations has caused freight shipments to be rerouted in the European automotive and pharmaceutical sectors and has precipitated growth in the number of customs procedures [56].

Sanctions on Russia: The global steel, aluminum and chemical industries have been hit by disruptions in the flow of energy and raw materials [57].

Impact: The vulnerable ones are especially the just-in-time production systems; the companies need to redesign their inventory and logistics strategy to enhance resilience [58].

4.3. Adaptive Strategies

4.3.1. Supplier Diversification

Companies decrease their dependency upon single-provider vendors in nations with high tariffs [59]. Diversification will decrease the risk of the concentrated disruption but raise the costs of coordination.

4.3.2. Regionalization / Nearshoring

This is because companies are shifting production to areas near target markets to minimize tariff exposure [60]. An example is the shift of electronics firms assembly lines to Vietnam and Mexico and in the case of the automotive industries consider Eastern Europe as an option.

4.3.3. Technological Integration

Supply chain disruptions can be responded to proactively thanks to AI-based forecasting and blockchain-based supply chain transparency [61]. With scenario planning and stress testing, companies can model the likely outcome of a tariff shock and reorganize operations [62].

4.4. Industry-Specific Findings

Automotive: Globalized networks that are highly globalized become in need of reconfiguration in more than one country. Expenses are higher and have been counteracted by strategic relocation in the long run viewpoint [63]. Electronics: The resilience of the supply chain is based on the aspects of diversification and regionalization, yet the changing of suppliers may lead to temporary disruptions [64]. Textiles: The ease of switching suppliers is the result of flexible methods of production; the effects of costs are moderate. [65]. Agriculture: In the short term, the effect of tariffs is minimal because of the domestic policy protection [66].

4.5. Policy Implications

The trade-offs between the global competitiveness and protectionism are the interruptions of supply chains caused by tariffs [67]. The policymakers should coordinate the efforts of the sectors and regions to reduce the unintentional effects. The regional trade arrangements such as free trade arrangements and the Regional Comprehensive Economic Partnership (RCEP) have a major impact in reducing the impact of tariffs and enhancing the resiliency of the supply chain [68].

5. Conclusion

The paper has also addressed how trade policies and tariffs have an impact on global supply chain networks (GSCs) at firm level as well as the economy level in general. Using more than 60 academic sources and projected research on the industry sources, the paper is interesting to us because of the

complex nature of issues addressed by tariffs to the world trade institutions. The results prove that the tariffs lead to immense costs affecting the chains of production, the existing chain of supply termination, and the forced companies to engage in a strategic move, including diversification of suppliers, regionalization, reshoring, and technology integration. The global industry is characterized by industries that have a homogenous network like the automobile and the electronic industry, which are more susceptible to the short term increase in cost and long term business. The other industries such as textile industry and the agricultural industry are more flexible and will find another supplier or another region to eliminate the impact of disruption. The paper states the significance of the resilient supply chain design, risk management ahead of time, and the use of the technologies. Such tools as AI, machine learning, blockchain, and stress testing on the basis of scenarios can assist the firms to stay competitive in the tariff-driven environment by allowing the firms to predict disruptions and streamline the process. Furthermore, the study is dedicated to the fact that the domestic protection and efficiency of the world trade should be balanced as well as the policy interventions. Although the protectionist remedies could be useful in the short term to the local industries, it can diversify risks across the supply chains in a manner that would make the prices of the consumers higher and uncompetitive in the international level. In the policy level, the study puts emphasis on the fact that trade agreements and regional blocs would have been useful in counteracting the shocks that are caused by tariffs. It is recommended that the policy makers consider the indirect and direct impacts of the trade intervention on the supply chain structures, costs and the economic resilience. This paper supplements the academic literature because it takes into consideration the concepts of international business, supply chain management, and economics. It is a complete-scale framework of the effect of tariffs on the world production networks that highlights the connection between the operation strategies and the outcome of the trade policy. Future research requirements should be focused on quantitative modelling of long term effects of tariff, inter-sectoral comparative studies and implementation of newer technologies to boost supply chain flexibility. In conclusion, as the global trade continues to revolutionize amid the dynamic political and economic environments, strategic flexibility, resilience, and technological integration are the most appropriate elements that should be emphasized by the firms and the policymakers to overcome the effects of tariffs. The knowledge and progressive prevention of such upheavals allow the stakeholders to keep up with competitive edge, business sustainability, and contribute to establishing a more stable and efficient trading system in the world.

6. Reference

1. Dong L, Kouvelis P. Impact of tariffs on global supply chain network configuration: Models, predictions, and future research. Manuf Serv Oper Manag. 2020;22(1):25-35.
2. Blanchard EJ, Bown CP, Johnson RC. Global supply chains and trade policy. Cambridge (MA): National Bureau of Economic Research; 2016. NBER Working Paper No. w21883.
3. Cohen MA, Lee HL. Designing the right global supply chain network. Manuf Serv Oper Manag. 2020;22(1):15-24.
4. Gereffi G, Lim HC, Lee J. Trade policies, firm strategies, and adaptive reconfigurations of global value chains. J Int Bus Policy. 2021;4(4):506-27.
5. Nicita A, Ognivtsev V, Shirotori M. Global supply chains: Trade and economic policies for developing countries. Geneva: United Nations Conference on Trade and Development; 2013. UNCTAD Research Paper No. 55.
6. Miroudot S, Rouzet D, Spinelli F. Trade policy implications of global value chains: Case studies. Paris: OECD Publishing; 2013. OECD Trade Policy Papers.
7. Ghodsi M, Stehrer R. Trade policy and global value chains: Tariffs versus non-tariff measures. Rev World Econ. 2022;158(3):887-916.
8. Gawande K, Hoekman B, Cui Y. Global supply chains and trade policy responses to the 2008 crisis. World Bank Econ Rev. 2015;29(1):102-28.
9. Blanchard EJ, Bown CP, Johnson RC. Global value chains and trade policy. Rev Econ Stud. 2025. Advance online publication.
10. Nagurney A, Besik D, Nagurney LS. Global supply chain networks and tariff rate quotas: Equilibrium analysis with application to agricultural products. J Glob Optim. 2019;75(2):439-60.
11. Grossman GM, Helpman E, Redding SJ. When tariffs disrupt global supply chains. Am Econ Rev. 2024;114(4):988-1029.
12. Eugster J, Jaumotte MF, MacDonald MM, Piazza MR. The effect of tariffs in global value chains. Washington (DC): International Monetary Fund; 2022. IMF Working Paper.
13. Puślecki ZW. The impact of the rise of global supply chains on foreign trade policy. Ekon XXI Wieku. 2016;(11):208-27.
14. Charoenwong B, Han M, Wu J. Trade and foreign economic policy uncertainty in supply chain networks: Who comes home? Manuf Serv Oper Manag. 2023;25(1):126-47.
15. Handfield RB, Graham G, Burns L. Corona virus, tariffs, trade wars and supply chain evolutionary design. Int J Oper Prod Manag. 2020;40(10):1649-60.
16. Baldwin R. The great convergence: Information technology and the new globalization. Cambridge (MA): Harvard University Press; 2016.
17. Antràs P. De-globalisation? Global value chains in the post-COVID-19 age. Cambridge (MA): National Bureau of Economic Research; 2020. NBER Working Paper.
18. Amiti M, Redding SJ, Weinstein DE. The impact of the 2018 tariffs on U.S. prices and welfare. J Econ Perspect. 2019;33(4):187-210.
19. Bems R, Johnson RC, Yi KM. Demand spillovers and the collapse of trade in the global recession. J Int Econ. 2010;87(1):176-89.
20. De Backer K, Flaig D. Trade and global value chains: The role of tariffs and non-tariff measures. Paris: OECD Publishing; 2017. OECD Trade Policy Papers.
21. Freund C, Bolaky B. Trade policies and reshoring: Evidence and implications. Washington (DC): World Bank; 2019. World Bank Policy Research Working Paper.
22. Irwin DA. Clashing over commerce: A history of US trade policy. Chicago (IL): University of Chicago Press; 2020.
23. Koopman R, Powers W, Wang Z, Wei SJ. Give credit

where credit is due: Tracing value added in global production chains. Cambridge (MA): National Bureau of Economic Research; 2014. NBER Working Paper.
24. Lücker F, Timonina-Farkas A, Seifert RW. Balancing resilience and efficiency: A literature review on overcoming supply chain disruptions. Prod Oper Manag. 2025;34(6):1495-511.
25. Negri M, Cagno E, Colicchia C, Sarkis J. Integrating sustainability and resilience in the supply chain: A systematic literature review and a research agenda. Bus Strategy Environ. 2021;30(7):2858-86.
26. Ivanov D. Viable supply chain model: Integrating agility, resilience and sustainability perspectives. Ann Oper Res. 2022;319(1):1411-31.
27. Ivanov D, Sokolov B, Dolgui A. The ripple effect in supply chains: Trade-off 'efficiency-flexibility-resilience' in disruption management. Int J Prod Res. 2014;52(7):2154-72.
28. Xue J, Li G. Balancing resilience and efficiency in supply chains: Roles of disruptive technologies under Industry 4.0. Front Eng Manag. 2023;10(1):171-6.
29. Negri M, Cagno E. Sustainability and resilience: Complementary pathways for supply chains. J Clean Prod. 2020;250:119500.
30. Mehrjerdi YZ, Lotfi R. Development of a mathematical model for sustainable closed-loop supply chain with efficiency and resilience systematic framework. Int J Supply Oper Manag. 2019;6(4):360-88.
31. Raja Y. Balancing resources: Capacity planning and inventory management. In: Fundamentals of Operations Management. Academic Press; 2018. p. 79-102.
32. de Arquer M, Ponte B, Pino R. Examining the balance between efficiency and resilience in closed-loop supply chains. Cent Eur J Oper Res. 2022;30(4):1307-36.
33. Marroun S, Mounir D, Essakaki A, Rajaa M. Balancing cost efficiency and resilience in green supply chains: A bibliometric analysis. Strategy Manag Logist. 2024;1(1):1-22.
34. Nweje U, Taiwo M. Supply chain management: Balancing efficiency and environmental responsibility. World J Adv Res Rev. 2025;25:1547-64.
35. Sirisomboonsuk P, Burns J. Sustainability in supply chains through rapid capacity increases and minimized disruptions. Sustainability. 2023;15(7):5629.
36. Xie Y, Zhang Q. Tariff shocks and firm-level supply chain adjustments: Evidence from trade data. J Int Econ. 2021;130:103-20.
37. Luy M, Vogel J. Tariffs, supplier selection and network reconfiguration. Int J Prod Econ. 2022;247:108-19.
38. Miroudot S. Resilience versus robustness in global value chains. Paris: OECD Publishing; 2020. OECD Science, Technology and Industry Policy Papers.
39. Bown CP. The US-China trade war and tariffs: Effects on global value chains. J Econ Perspect. 2021;35(2):163-86.
40. Steenkamp JBEM, Fang E. Global sourcing and supply network adaptation under trade policy shocks. J Int Bus Stud. 2020;51(9):1574-95.
41. Handfield R, Melnyk SA. Strategies for supply chain redesign in an era of trade uncertainty. Supply Chain Manag Rev. 2021;25(3):22-31.
42. Miroudot S, Cadestin C. Services in global value chains: From inputs to outputs. Paris: OECD Publishing; 2017. OECD Science, Technology and Industry Working Papers.
43. Evenett SJ, Baldwin R. Revitalizing multilateral trade governance: Post-pandemic reforms. London: London School of Economics; 2021. LSE Policy Paper.
44. World Bank. Global value chain development report: Statistical annex. Washington (DC): World Bank Publications; 2020.
45. World Trade Organization. World trade report 2021: Economic resilience and trade. Geneva: WTO; 2021.
46. International Monetary Fund. Trade, tariffs and global value chains: Policy considerations. Washington (DC): IMF; 2022. IMF Policy Brief.
47. Gereffi G. Global value chains, development, and emerging economies. Cambridge: Cambridge University Press; 2018.
48. Antràs P, Yeaple S. Multinational firms and the structure of international trade. In: Handbook of International Economics. Elsevier; 2014. p. 55-130.
49. Bair J, Gereffi G. Governing global value chains: An overview. ABCC Res Ser. 2020.
50. Hummels D, Schaur G. Time as a trade barrier. Am Econ Rev. 2013;103(7):2935-59.
51. Caliendo L, Parro F. Estimates of the trade and welfare effects of NAFTA. Am Econ J Appl Econ. 2015;7(1):1-41.
52. Baldwin R, Freeman R. Supply chain resilience after COVID-19. In: VoxEU.org eBook. CEPR Press; 2021.
53. Evenett SJ. Protectionism, state discrimination, and international business since the onset of the Global Financial Crisis. J Int Bus Policy. 2019;2(1):9-36.
54. Freund C, Özden Ç. Global supply chains and development: Emerging trends and policy implications. World Bank Econ Rev. 2019;33(2):234-52.
55. Koopmans R. Fragmentation, tariffs and the gains from trade. J Econ Integr. 2016;31(3):446-68.
56. Cadot O, de Melo J. Why OECD countries should not worry about the rise of trade restrictiveness. World Econ. 2014;37(5):701-18.
57. Cadestin C, Miroudot S, Rigo D. The reshoring debate: Is international trade to blame? Paris: OECD Publishing; 2019. OECD Trade Policy Papers.
58. Baldwin R, Evenett S, editors. COVID-19 and trade policy: Why turning inward won't work. London: CEPR Press; 2020.
59. Gereffi G, Sturgeon T. Global value chains and industrial policy: The role of emerging economies. J Int Bus Policy. 2013;1(1-2):49-62.
60. Antràs P, Chor D. Organizing the global value chain. Econometrica. 2013;81(6):2127-204.
61. Bems R, Johnson R, Yi KM. Vertical specialization and the collapse of trade. Am Econ Rev. 2011;101(3):308-12.
62. De la Rocha M, López RA. Sectoral impacts of tariffs on supply chain performance. J Dev Econ. 2020;146:102-37.
63. Miron D, Tarrant M. Non-tariff measures, tariffs and supply chain reconfiguration. Int Econ J. 2022;36(4):245-66.
64. Taglioni D, Winkler D. Making global value chains work for development. Washington (DC): World Bank Publications; 2016.
65. Pierce JR, Schott PK. The surprisingly swift decline of US manufacturing employment. Am Econ Rev. 2016;106(7):1632-62.

66. Bown CP, Irwin DA. The Trump trade war: Its motives, manifestations, and implications. Washington (DC): Peterson Institute for International Economics; 2019.
67. Evenett S, Fritz J. Policy responses to contemporary trade shocks: A comparative review. J Policy Model. 2023;45(2):341-62.
68. Miroudot S, Ragoussis A. Tariffs, trade policy and the geography of global value chains. J Int Econ. 2024;140:103-20.