



**The Impact of U.S.-China Trade Tensions on Global Supply Chains:
Challenges, Adaptations, and Strategic Responses**

Rajat Kumar Singh
6617193003

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Rajat Kumar Singh

This Independent Study Has Been Approved as a Partial Fulfillment of the
Requirements for the Degree of Master of Business Administration

Advisor.....

(Associate Professor Dr. Jomphong Mongkhonvanit)

Date:/...../.....

.....
(Associate Professor Dr. Jomphong Mongkhonvanit)

Dean, Graduate School of Business

Date:/...../.....

Title: The Impact of U.S.-China Trade Tensions on Global Supply Chains: Challenges, Adaptations, and Strategic Responses
Researcher: Rajat Kumar Singh
Degree: Master of Business Administration
Major: International Business Management

Advisor:

.....
(Associate Professor Dr. Jomphong Mongkhonvanit)

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.....

ABSTRACT

This study examined how trade tensions between the US and China are causing multinational firms to adjust to growing geopolitical risks. The study explored changes in sourcing tactics, including the implementation of the "China Plus One" model and the expanding significance of nations like Vietnam and India, using secondary data and industry case studies. Important conclusions point to a shift towards digitalisation, supply chain resilience, and diversity, particularly in high-impact industries like consumer products and electronics. The study also points out that small and medium-sized businesses encounter several obstacles, but giant corporations are better able to adjust. Business executives and politicians can use the insights from the research findings to navigate the increasingly unpredictable global trade climate.

Interest in alternative manufacturing centers has increased as a result of this change, with nations like Vietnam and India becoming more alluring locations for supply chain relocation. The study also highlights the increasing importance of digital technologies, automation, and regional trade agreements in creating more robust supply networks. These advancements point to a fundamental shift in the way multinational corporations handle operational flexibility, risk, and expense in a trade environment that is becoming more unstable.

Keywords: global supply chain, china Plus One strategy, supply chain resilience, supply chain diversification

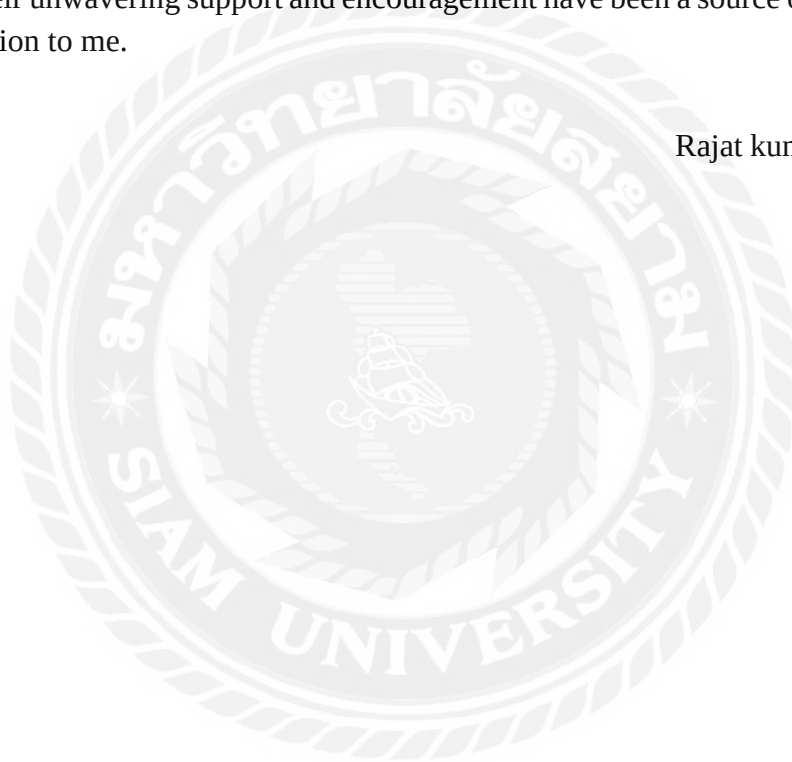
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Rajat kumar Singh



DECLARATION

I, Rajat Kumar Singh, hereby declare that this Independent Study entitled "The Impact of U.S.-China Trade Tensions on Global Supply Chains: Challenges, Adaptations, and Strategic Responses" is an original work and has never been submitted to any academic institution for a degree.

(Rajat kumar Singh)

Feb 20, 2023



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Chapter 1 Introduction

1.1 Research Background

The commercial relationship between the United States and China has become a focal point of the growing geopolitical unpredictability that has characterised the global economy over the past ten years. Citing worries about trade imbalances and intellectual property theft, the United States started enforcing a number of tariffs on Chinese imports under Section 301 of the Trade Act in 2018. China responded by imposing duties of its own, sparking a full-scale trade war. These tensions disturbed the most integrated supply chains in the world, especially in the textile, electronics, consumer products, and automobile industries. Multinational corporations (MNCs) that mostly relied on Chinese manufacturing faced growing costs, uncertain regulations, and logistical difficulties as the two biggest economies in the world traded blows. This compelled businesses to reconsider their worldwide sourcing plans and look into alternate production locations; this is known as the "China Plus One" approach. Mexico, Vietnam, and India started to draw interest as possible recipients of this realignment.

The risks of relying too much on a single market have also been brought to light by the COVID-19 epidemic and other geopolitical events. Understanding how companies are modifying their international operations to manage risk, lessen dependency, and preserve competitiveness in an increasingly fragmented global trade environment requires examining the long-term effects of U.S.-China trade tensions on global supply chains

1.2 Research Problems

Initiated in 2018, the U.S.-China trade war has become one of the 21st century's most disruptive events for global supply chains. With the United States imposing tariffs on Chinese imports valued over \$500 billion and China retaliating in kind, multinational firms found themselves caught in the crossfire of a quickly intensifying geopolitical battle. Global production networks, sourcing tactics, and supply continuity have all been severely disrupted by the ensuing uncertainty. Businesses that had previously depended on China's low-cost production and effective logistics were abruptly faced with higher input costs, longer lead times, and less predictability. Industries that were heavily interwoven into Chinese production ecosystems, such as textiles, electronics, and automobiles, were especially at risk. Many companies' reactive actions, such moving a portion of their supply chains or implementing the "China Plus One" strategy, have frequently been expensive, complicated, and ineffective.

Furthermore, strategic planning has been challenging due to the lack of long-term clarity in trade policy. Many organisations face a challenge in forecasting future risks, such as export bans, technological decoupling, and the potential for more geopolitical fragmentation, in addition to managing current disruptions. Despite the increasing number of case studies and media stories, there is a lack of scholarly research that systematically looks at how companies are realigning their global operations in response to these pressures.

Moreover, even while certain economies—like Vietnam and India—have become viable options for manufacturing, they still have their own problems, such as inadequate infrastructure, unstable policies, and labour market limitations. It is yet unclear if these nations can withstand the manufacturing transition away from China in a sustainable way or if businesses will eventually have to switch to hybrid, decentralised supply networks. This study aimed to address these complex concerns by identifying the strategic trends and new threats that will influence international commerce in the future and assessing the real-world impacts of trade tensions between the United States and China on supply chain decision-making.

1.3 Research Objectives

This study's main goal was to examine how trade disputes between the United States and China have affected the composition and strategic orientation of global supply networks. The study aimed to look into how global firms are implementing tactics including supply chain diversification, nearshoring, and the much-discussed "China Plus One" approach in response to growing geopolitical and economic risks. It also sought to ascertain how well these tactics lessen operational vulnerabilities, especially in significant industries like electronics, consumer goods, and textiles. Additionally, the study aimed to explore how alternative manufacturing hubs like Vietnam, India, and Mexico are starting to absorb supply chain changes, and also pinpoint the particular difficulties small and medium-sized businesses are having adjusting to these global developments.

1.4 Research Scope

This study examined how trade tensions between the United States and China affect global supply networks, especially from the viewpoint of multinational companies that trade internationally. The scope was restricted to examining trade developments, mainly from 2018 onwards, when the two nations' tariffs and policy measures became more severe. The study focused on the strategic solutions that businesses have implemented, including supplier diversification, manufacturing base relocation, and the "China Plus One" strategy. Geographically, the study focused on China and the US, and it also took into account the expanding significance of emerging economies as alternative hubs for manufacturing and sourcing, such as Vietnam, India, and Mexico. Sector-wise, the analysis focused especially on high-impact sectors that rely heavily on cross-border

supply chains, like consumer goods, electronics, and textiles.

1.5 Research Significance

There are various reasons why this study is significant. In the first place, it advances scholarly knowledge of how geopolitical tensions—more especially, the trade dispute between the United States and China—are changing global supply chain tactics. By looking at the realignment of sourcing and manufacturing activities, the study provides insight into how companies handle uncertainty and external trade shocks. In a globalised economy, where supply chain interruptions can significantly impact manufacturing costs, delivery schedules, and overall competitiveness, this is especially crucial. Second, the study's practical applicability can help corporate executives and policymakers. Corporate decision-makers can use knowledge of the long-term effects of trade disputes to inform operational restructuring, risk mitigation plans, and investment choices. Policymakers can use the findings to guide trade and industrial policies that aim to improve resilience in key industries, increase domestic supply capabilities, and draw in foreign investment.

Last but not least, this study is pertinent and contemporary since companies deal with global disruptions including pandemics, climate-related calamities, and geopolitical instability in addition to trade disputes. As a result, future supply chains can be made more adaptable and varied by applying the lessons learnt from the trade disputes between the US and China.

1.6 Definition of Key Terms

The following key terms are defined in alignment with the conceptual framework to ensure conceptual clarity and consistency in analysis.

U.S.-China Trade Tensions: The current political and economic dispute between the US and China, which started in 2018 and is characterised by punitive policies, trade restrictions, and higher tariffs. The dynamics of international trade, investment flows, and the strategic conduct of multinational corporations are all impacted by these conflicts.

Global Supply Chains: A system of manufacturing and distribution operations spread over several nations that businesses employ to get raw materials, produce commodities, and ship their goods to international markets. These are frequently set up to maximise market access, cost, and efficiency.

Supply Chain Restructuring: The process via which companies rearrange their networks for manufacturing, distribution, or sourcing. This includes diversification, digital transformation, nearshoring, and reshoring in reaction to external shocks or strategic changes.

Foreign Direct Investment (FDI) Relocation: FDI relocation refers to the shifting of investment and production facilities from one country to another in response to cost changes, policy incentives, or geopolitical risks.

Geopolitical Risk: Uncertainty or instability resulting from political tensions, conflicts, or governmental acts affects judgements about international trade and investment. This setting includes tariff warfare, export restrictions, and strategic decoupling.

China Plus One Strategy: A business approach in which firms continue to operate in China while growing or moving a portion of their output abroad. The goal is to diversify supply chain risk without entirely exiting the Chinese market.

Regionalization: The trend of organizing supply chains and trade flows within a specific geographic region (e.g., Asia-Pacific or North America) as opposed to globally, often driven by geopolitical risk or trade agreements.

Digital Supply Chain / Digital Transformation: The use of advanced technologies such as artificial intelligence, blockchain, IoT, and data analytics to improve supply chain visibility, coordination, and responsiveness.

Chapter 2 Literature Review

2.1 Trade Tensions and Supply Chain Relocation

Relocating industrial activities has been one of the most direct effects of the trade dispute between the United States and China. Multinational firms have moved their production from China to less expensive nations like Vietnam, Thailand, and India as a result of rising tariffs, according to empirical data presented by Liu and Woo (2019). According to their findings, companies who relied more on Chinese inputs were more inclined to change their sourcing tactics in order to counteract cost rises brought on by policy. Zhan et al. (2021) supported this tendency by pointing out that a lot of businesses are implementing the "China Plus One" model, which keeps a presence in China while expanding their operations to other countries. Relocating the supply chain is a longer-term strategic change motivated by both cost and risk considerations, as the literature repeatedly demonstrates.

However, Antràs (2021) added a theoretical and macroeconomic dimension, contending that the combined pressures of pandemic disruptions and trade conflicts have undermined the case for global fragmentation. According to his concept, offshore will decrease in capital-intensive sectors where control and security are critical. When taken as a whole, these pieces highlight a fundamental shift in how businesses plan their supply chains in reaction to global volatility.

2.2 FDI Realignment and New Manufacturing Hubs

The change in foreign direct investment (FDI) flows is one of the clearest signs of how companies are responding to the ongoing trade tensions between the US and China. China has historically been the world's manufacturing centre because of its affordable prices, highly skilled labour force, and advanced infrastructure. However, growing tariffs, rising labour costs, and political unpredictability have forced multinational corporations (MNCs) to reconsider their over-reliance on Chinese supply chains. As developing countries like Vietnam, India, Mexico, and Indonesia are becoming more and more recognised as alternative manufacturing hubs, foreign direct investment (FDI) has been deliberately focused on them.

Recent empirical research confirms that this FDI rerouting is a component of a larger structural change in global supply chains rather than just a tactical one. FDI to China decreased by 5%, while FDI to Vietnam and India increased by 11% and 9%, respectively, according to UNCTAD's World Investment Report (2023). This suggests a distinct trend of diversification, driven by companies looking for operational resilience and geopolitical insulation (UNCTAD, 2023)

Luo and Zahra (2022) highlight the importance of FDI realignment in global strategic planning and contend that companies are deliberately moving investments to lower exposure to political risk and guarantee company continuity. This opinion is supported by Gereffi and Pananond (2021), who highlighted how ASEAN economies are profiting from nearshoring and friend-shoring tactics, especially in high-tech and electronic sectors that were previously controlled by China. Nearly all of the FDI movements that accompanied the relocation of supply chains reflected the fact that more than 60% of the companies assessed in the PwC (2024) research had done so. These decisions were impacted by trade policy as well as the alluring incentives, improved internet infrastructure, and growing domestic markets of the host countries.

Global supply chain reorganisation is directly impacted by FDI realignment in a number of ways:

- **Diversification of Production Bases:** Reduces single-country dependency and spreads operational risks.
- **Regionalization of Supply Chains:** Promotes closer proximity between production and consumption markets (e.g., U.S.-Mexico integration).
- **Infrastructure Development in New Hubs:** Stimulates economic growth and enhances logistics capabilities in FDI-receiving nations.
- **Strategic Realignment with Policy Incentives:** Host countries provide tax relief, land acquisition support, and policy flexibility to attract relocation.

These changes have led to more distributed, flexible, and robust networks, especially in sectors like electronics, textiles, automobiles, and pharmaceuticals, and they are collectively rethinking supply chain topologies. As a result, the global trade map has changed, and businesses are now better equipped to respond swiftly to emergencies and regulatory changes.

In conclusion, the continuous realignment of foreign direct investment (FDI) is both a cause and an effect of the larger reconfiguration of global supply chains. This dynamic changes the economic fortunes of emerging economies as well as the competitive environment of international trade.

2.3 Geopolitical Risk and Supply Chain Strategy

The increasing impact of geopolitical risk on supply chain strategy is another major issue in the literature. A conceptual model by Manuj et al, (2008) identified geopolitical risk as one of the major outside factors influencing supply chain design. Their methodology focusses on how companies use flexible tactics including supply base diversification, diverse sourcing, and larger inventory buffers to respond to trade disputes, political unrest, and sanctions.

One recent and noteworthy example of how political actions impact operational decision-making is the tensions surrounding trade between the United States and China. Antràs (2021) emphasised how enterprises prioritise resilience above cost minimisation due to trade policy uncertainty and geopolitical rivalries. According to his findings, companies are more likely to use nearshore operations in high-risk environments or internalise manufacturing in order to lower exposure.

This viewpoint is supported by Baldwin and Freeman (2020), who contended that geopolitical disturbances create "contagion waves" in global supply chains, increasing a company's vulnerability to upstream shocks. According to the combined findings of these studies, geopolitical risks are now key strategic variables in global operations management rather than being ancillary issues.

2.4 Digital Resilience and Adaptability

In the face of global trade disruptions, the digital resilience of supply chains has become a critical differentiator for companies negotiating the difficulties presented by U.S.-China trade hostilities. The ability of businesses to efficiently anticipate, respond to, and recover from supply chain disruptions by utilising digital technologies like blockchain, IoT, artificial intelligence (AI), and digital twins is known as digital resilience. Businesses with a high level of digital maturity are more equipped to spot weaknesses, improve openness, and adjust to shocks like trade restrictions and changing geopolitical conditions. According to Ivanov (2021), digital twins are essential to the creation of predictive simulations that let companies simulate various disruption scenarios and optimise supply chain configurations in real time. In a similar vein, Queiroz et al. (2022) offered a framework for digital transformation that shows how innovations like artificial intelligence (AI), blockchain, and cloud-based systems improve supply chain flexibility and recovery speed in the event of pandemic or geopolitical shocks.

Countries with sophisticated digital logistics infrastructure, like Germany, Singapore, and South Korea, showed greater realignment capabilities in global value chains and a quicker recovery than those with less developed digital systems, according to the World Bank's Logistics Performance Index (2023) (World Bank, 2023). This bolsters the notion that digital preparedness is a macro-level facilitator of robust trade networks as well as a firm-level benefit.

Furthermore, 74% of executives have invested in digital solutions for real-time tracking and predictive analytics in response to the increasing trade uncertainties, per the results of the Deloitte 2024 Global Supply Chain Survey. Navigating tariff changes and border delays requires more flexible sourcing, rerouting, and inventory decisions, which these solutions make possible.

Recent studies have shown that digital preparedness increases firm-level resilience and regional FDI attraction. Luo and Zahra (2022) claimed that economies like Vietnam and India that combine digital infrastructure with manufacturing capabilities have seen large inflows of technology-driven foreign direct investment (FDI) as multinational firms look for production bases that are both politically stable and technologically proficient.

Investors seeking to develop efficient, transparent, and traceable operations within integrated regional markets are drawn to digital maturity. A significant regionalisation effect is evident in this tendency. Similarly, Baldwin and Freeman (2022) contended that digital connection improves physical trade corridors and enables more seamless cross-border production flows by lowering information asymmetries.

Additionally, regional trade agreements (RTAs) and digital infrastructure work well together to increase market access and coordination effectiveness. For instance, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP) support digital trade regulations and e-commerce facilitation measures that enable data to move freely across borders and standardise digital documentation. Kim and Lee (2023) claimed that digital provisions in RTAs greatly reduce transaction costs, improving market access and supply chain synchronisation among member economies. These frameworks assist businesses in utilising local ecosystems for both technologically integrated value creation and low-cost production.

Srinivasan et al's (2023) empirical evidence supports the connection between supply chain reorganisation and digital capabilities. In the event of interruptions, digitally developed organisations were statistically more likely to reorganise their networks through local warehousing, multi-sourcing, or regionalisation. The combined data from these sources highlights the importance of digital resilience to the broader process of global supply chain transformation. As companies diversify their production bases and grow less dependent on any one country, technology provides both protection and facilitation, ensuring visibility, traceability, and strategic adaptability. These developments demonstrate a long-term trend towards data-driven, digitally connected supply chain architectures that are built for efficiency and resilience in an increasingly uncertain world.

2.5 Regionalization vs. Globalization

A major strategic change in how businesses set up their global value chains in reaction to geopolitical unpredictability is the tendency towards regionalisation. Globalisation has historically been defined by extensive, cost-efficient industrial networks that frequently span several continents. But the combination of rising nationalism, COVID-19 disruptions, Brexit, and U.S.-China trade tensions has forced businesses to reevaluate the risk of their globally distributed operations. While globalisation used to provide unparalleled scale and specialisation, Antràs (2021) contended that it now exposes businesses to increased logistical risks, erratic trade barriers, and rising compliance and customs regulation expenses.

As a result, a lot of businesses are switching to a regionalisation strategy, which focusses manufacturing and distribution efforts within particular geographic blocks. According to Zhan et al. (2021), businesses are progressively concentrating their operations in areas like Europe (under the EU single market), East Asia (under the RCEP), and North America (under the USMCA). These regional centres are preferred due to their political alignment, infrastructure readiness, and trade efficiency. Particularly in sectors that place a high priority on customisation and speed-to-market, Kim and Lee (2020) discovered that regional value chains enable quicker reaction times, reduced transportation costs, and enhanced supply chain visibility.

Additionally, regionalisation improves a company's capacity to meet local content standards, take advantage of trade preferences, and interact more effectively with local customers. According to Sebastien Miroudot (2021), digital technologies facilitate this trend by allowing for flexible production scheduling within constrained areas, real-time tracking, and localised analytics. However, researchers also warn that regionalisation may split innovation ecosystems, increase costs because of redundancy, and restrict access to specialised global inputs. Therefore, regionalisation is seen as a risk-buffering mechanism that coexists with global integration in a more balanced and adaptable framework rather than as a total replacement for globalisation.

2.6 Policy Incentives and Government Interventions

Global supply chain transformation has been significantly influenced by government policies and incentive programs in recent years. The existence of proactive industrial policies, tax incentives, and infrastructure investments has become a crucial element in choosing new manufacturing locations as multinational corporations look to reduce risks from trade conflicts and supply interruptions. These days, policy interventions do more than just facilitate trade; they strategically direct supply-chain diversification and factory migration.

In response to the changing trade environment, several governments have implemented targeted fiscal policies to increase domestic manufacturing capacity and draw in investment. For instance, production-linked incentive (PLI) programs have been put in place in Vietnam and India to promote investment in the semiconductor, electronics, and renewable energy industries. Multinational corporations looking for stable, affordable, and digitally capable operational environments have been successfully enticed to these regulations. Between 2020 and 2022, more than sixty

economies launched new reshoring credits and subsidy & schemes, indicating a global trend towards intentional involvement in trade realignment (Evenett & Fritz, 2022). Similar findings from the OECD (2022) indicate that transparent and technology-focused incentive programs have directly boosted FDI inflows, especially in nations that combine fiscal assistance with the development of digital infrastructure and modern logistics.

By combining fiscal incentives with regional collaboration, governments can establish synergistic ecosystems that promote investment from both domestic and foreign sources. While fiscal measures serve as micro-level incentives for relocation, trade agreements offer macro-level market access and security. This balance allows nations like Mexico, Vietnam, and Indonesia to bolster their roles as manufacturing centres in the global supply chain. Regional integration and coordinated policy design are currently two of the most crucial elements in supply chain transformation, according to Baldwin and Freeman (2022). In the end, government interventions and policy incentives indicate a purposeful reorientation of trade and production patterns rather than merely short-term economic solutions. Countries are more likely to draw long-term foreign direct investment (FDI) and spearhead the next stage of global supply chain transformation if they successfully integrate digital readiness, regional market integration, and industrial incentives.

2.7 Sector-Specific Responses to Trade Tensions

Because supply chain patterns vary greatly among industries, trade disputes have a substantial sector-specific impact. Companies have shown more flexibility in moving assembly operations while keeping higher-value activities like R&D and component manufacturing at strategic locations in industries like electronics, which are defined by modular production and global outsourcing. According to Liu and Woo (2019), companies in this industry use a "China Plus One" model, in which China continues to be a link in the value chain but is supplemented by other production locations in nations like Thailand, Mexico, and Vietnam. This strategy maintains economies of scale while reducing tariffs.

On the other hand, relocation is expensive and dangerous for sectors like biotechnology and pharmaceuticals due to regulatory barriers, strict quality standards, and longer product development cycles. Businesses in these sectors, according to Manuj and Mentzer. (2008), rely less on total relocation and more on buffer stock buildup, dual sourcing for essential materials, and bolstering supplier relationships. Because of their strategic significance, these industries also attracted significant government interference during the COVID-19 pandemic, when governments from all over the world rushed to secure local medication and vaccine manufacturing.

One particular instance of partial migration is the car industry. The industry's dependence on just-in-time manufacturing and specialised components makes a complete transfer impractical, even though several Tier 1 suppliers have diversified away from China. According to Baldwin and Freeman (2020), businesses in this industry are developing supplier alliances and investing in regional hubs to increase geographic flexibility without sacrificing production deadlines.

Conversely, labour-intensive sectors like clothing and textiles have demonstrated a far greater level of mobility. Businesses in this sector have quickly shifted operations to Bangladesh, India, and Cambodia in pursuit of tariff relief and wage advantages because to their comparatively easy supply chains and reduced capital requirements.

According to Zhan et al. (2021), these industries are also more susceptible to trade agreements, which increases the likelihood that they would move in reaction to changes in market access requirements and tariff regimes.

All things considered, sectoral reactions to trade tensions are extremely complicated, influenced by factors such as supply chain complexity, technological intensity, regulatory environment, and strategic significance. The necessity of distinct policy frameworks and firm-level tactics that are adapted to industry-specific dynamics is highlighted by this multi-layered understanding.

2.8 Role of Multinational Enterprises (MNEs) in Reconfiguring Global Supply Chains

Global supply chains have been significantly shaped by multinational enterprises (MNEs), and their reactions to the trade tensions between the United States and China have had a particularly significant impact on the acceleration of supply chain transformation. As the main designers and beneficiaries of globalisation, MNEs are currently at the forefront of a new wave of production network decoupling, diversification, and realignment. The existing study indicates that these companies are active strategists who are responsible for the evolution of international trade and investment flows, rather from only being recipients of policy shocks.

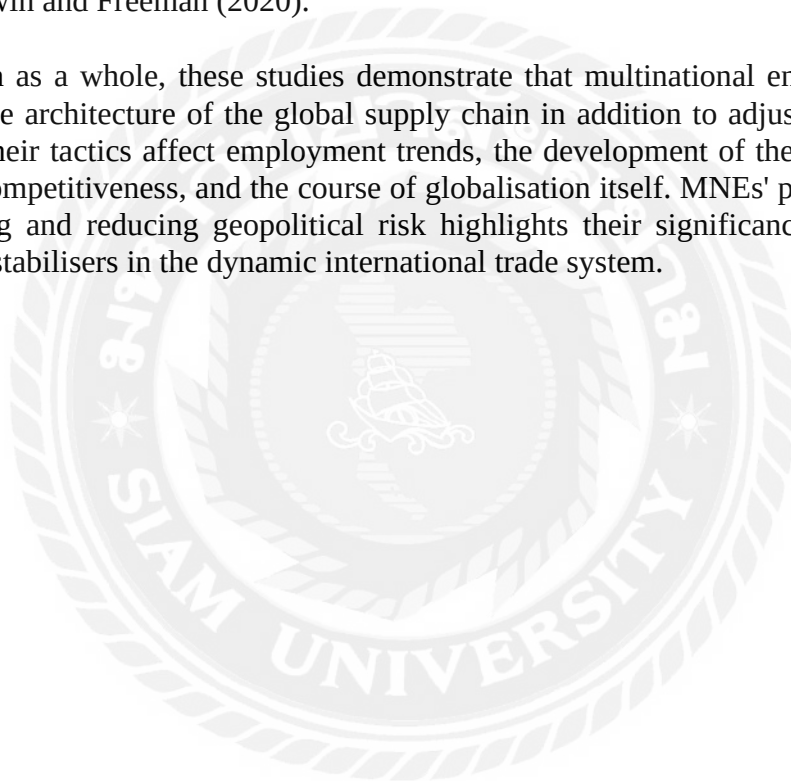
According to Gereffi (2018), MNEs play a crucial role in coordinating global value chains (GVCs), and the choices they make regarding site strategy, contract governance, and supplier selection have a significant influence. Many big companies have reorganised their networks by setting up secondary production bases in Southeast Asia, South Asia, and Latin America in reaction to increased export controls and tariffs between the United States and China. This trend is corroborated by Zhan et al. (2021), who noted that top MNEs are implementing "risk-sensitive" supply chain strategies that take geopolitical intelligence into account when choosing locations.

The governance tools that MNEs employ to deal with uncertainty are further explained by Kano, Tsang, and Yeung (2020). In order to increase flexibility and lessen their exposure to a single national regulatory framework, they contend that multinational enterprises are increasingly choosing hybrid governance models, which strike a balance between in-house production, contract manufacturing, and joint ventures. MNEs can quickly adapt their operations to changing trade regulations or restrictions thanks to these models.

Furthermore, MNEs are implementing what Liu and Woo (2019) call "strategic decoupling." Instead of completely leaving the Chinese market, businesses are dividing their activities for the domestic Chinese market from those that cater to American or international clients. MNEs are able to successfully construct parallel supply chains to preserve market access and regulatory compliance by using this strategy to manage the dispute without giving up on either market.

According to the literature, multinational enterprises (MNEs) are using their technological, operational, and financial resources to take the lead in fields including labour diversity, digital integration, and ESG compliance. Large companies have a strategic advantage in volatile trading settings because they can more readily bear the costs of relocation and reorganisation than small and medium-sized businesses (SMEs), claim Baldwin and Freeman (2020).

When taken as a whole, these studies demonstrate that multinational enterprises are changing the architecture of the global supply chain in addition to adjusting to trade disputes. Their tactics affect employment trends, the development of the host nation, company competitiveness, and the course of globalisation itself. MNEs' proactive role in managing and reducing geopolitical risk highlights their significance as change agents and stabilisers in the dynamic international trade system.



2.9 Conceptual Framework

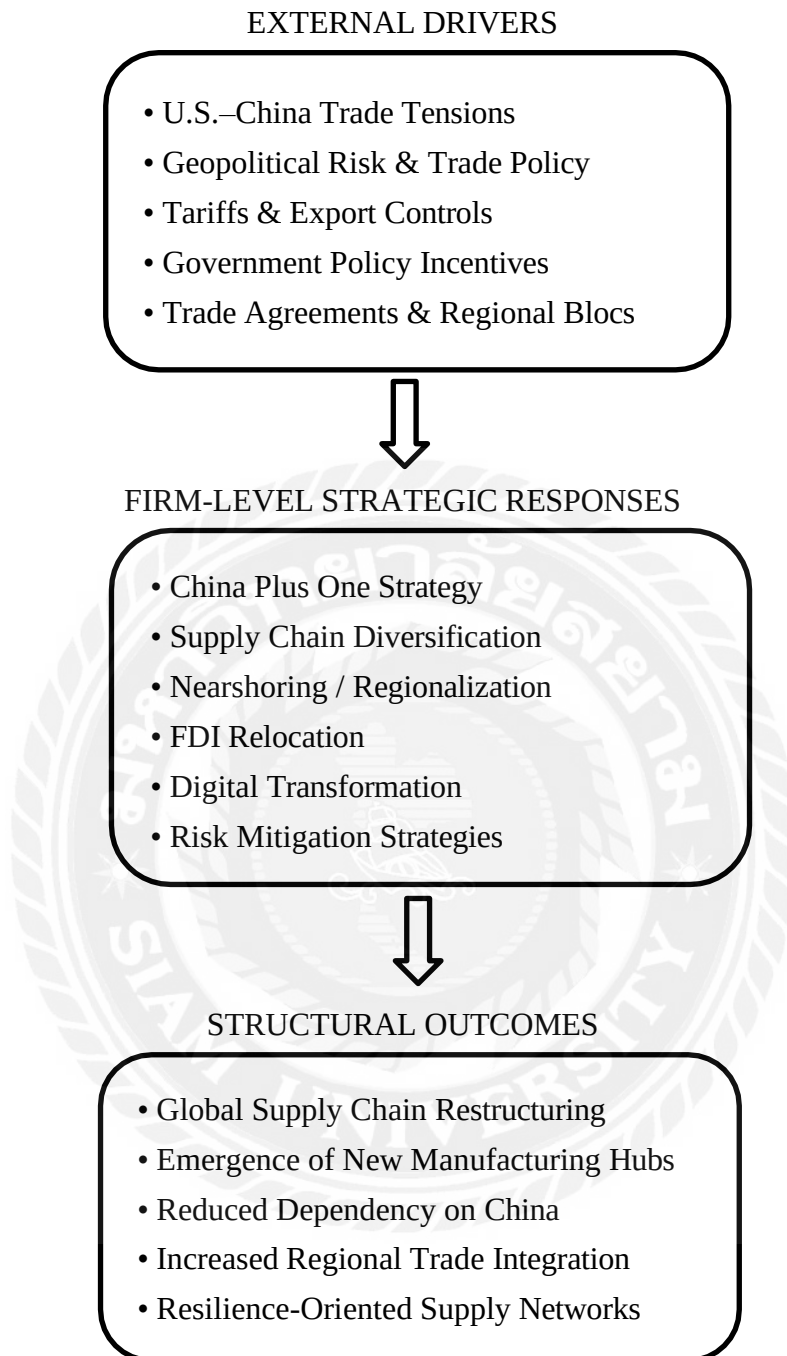


Figure 1: Conceptual Framework

This study formulated an analytical conceptual framework to examine the relationship between trade disputes between the United States and China and the reconfiguration of global supply networks. Since the study is descriptive and based on secondary data, the framework functions as an interpretive structure that guides the theme analysis rather than a statistical causal model. The framework's three interrelated components are the external drivers, firm-level strategic responses, and structural transformation outcomes.

Macro-level geopolitical and economic forces such as trade conflicts between the US and China, tariffs, export restrictions, policy uncertainty, and government incentives are covered in the first component, external drivers. These factors lead to higher operational risk and unpredictability in globally interconnected production networks.

The second component, firm-level strategic responses, refers to the flexible steps that firms, including multinational enterprises (MNEs), take in reaction to heightened uncertainty. These answers include digital transformation projects, supply chain diversification, nearshoring and regionalization, relocation of foreign direct investment, and more general risk mitigation techniques.

The third component, structural outcomes, captures the broader systemic changes emerging from the interaction between external pressures and firm-level adaptation. These outcomes include the restructuring of global supply chains, the emergence of alternative manufacturing hubs such as Vietnam and India, increased regionalisation of trade networks, and a shift from cost-efficiency-driven models toward resilience-oriented supply chain design.

As a result, the study uses this framework as a structured lens to examine the relationship between adaptive corporate strategies, multi-dimensional transformation in global supply chains, and geopolitical trade tensions. It provides direction for how the methodology, empirical findings, and organization of the literature review will be presented in subsequent chapters.

Chapter 3 Research Methodology

This chapter describes the methodology used to examine how trade tensions between the US and China affect the reorganisation of global supply chains. It details the methodology, data sources, data gathering, research design, and analytical approaches that served as the study's compass. The goal of this chapter is to provide a clear and systematic framework for understanding the research's methodology and conclusion. The study guarantees the validity, transparency, and reproducibility of the findings by outlining the process. Along with reflecting on ethical issues and the limits inherent in the research method, the chapter also covers the conceptual framework that served as the investigation's guide.

3.1 Research Design

The research design used in this study is exploratory and descriptive, because it makes it possible to systematically document and analyse observable supply chain patterns, company tactics, and policy reactions related to trade tensions between the United States and China. Finding novel patterns, linkages, and insights resulting from changing geopolitical dynamics and firm-level adaptations is the goal of integrating the exploratory component.

To give a thorough grasp of the research subject, this study used a mixed-methods approach that combined qualitative and quantitative techniques. Measurable indications of supply chain transformation were provided by quantitative data, such as trade flows, FDI movements, and tariff implications. Qualitative analysis was applied to case studies, policy documents, and industry reports to capture strategic decision-making in firms and to offer contextual depth.

The study captured both macro-level changes in global supply chains and micro-level organisational reactions by combining the two methodological approaches. This dual viewpoint enabled a sophisticated analysis that is both statistically supported and strategically informed for a topic that crosses the boundaries of international commerce, economics, and geopolitical risk.

A complex and dynamic subject like global supply networks, where both numerical trends and strategic behaviours must be understood simultaneously, is ideally suited for the application of a mixed-methods approach. Through a combination of exploratory analysis and formal theoretical foundation, the study strikes a balance between contextual richness and generalisability. As a result, the results are more robust.

3.2 Source of Data

The sources selected include:

- Working papers and peer-reviewed journal publications from the previous five to ten years.
- Examples of businesses (including Apple, Toyota, and Samsung)

who reorganised their supply chains as a result of the trade war between the United States and China.

- Reports that provide macroeconomic data and policy background from international organisations (such as the World Bank, IMF, WTO, and UNCTAD).
- Reputable magazines' news analysis and trade bulletins (e.g., The Economist, Financial Times, Nikkei Asia).

Although qualitative research does not require a fixed numeric sample size, this study used:

- 10 peer-reviewed academic papers (used to develop the conceptual framework).
 - 5 detailed industry case studies of firms impacted by U.S.-China trade tension
- Supplementary trade and investment reports as secondary sources.

The study's main methodology is secondary data collecting, which involves gathering information from pre-existing, openly available sources. The use of secondary data is justified by the research topic's worldwide scope and policy-driven character, both of which gain from extensive and reliable data sets.

Every document was chosen according to its publication date (ideally within the last five to ten years), relevance, credibility, and fit with the study's goals. To find literature, a methodical search approach utilising scholarly databases (such as JSTOR, ScienceDirect, and Google Scholar) was employed. To guarantee uniformity in the extraction and classification of data, a content analysis protocol was used to each chosen source.

3.3 Analysis Framework

The analysis approach for this study, which examined how trade tensions between the US and China have caused global supply chains to be restructured, consists of eight interrelated theme components. From technology resilience, sustainability imperatives, and policy interventions to geopolitical disruptions and FDI realignment, each dimension reflects a unique force influencing global value chains. The core conceptual factors influencing supply chain restructuring are geopolitical risk, investment relocation, digital capability, regionalisation, policy incentives, ESG compliance, trade agreement integration, and risk mitigation techniques.

Peer-reviewed scholarly journals, institutional studies, and industrial evaluations released between 2020 and 2025 are the sources of the data. Patterns are validated using quantitative measures such as FDI inflows, trade volume movements, and technology adoption rates, and qualitative insights on the strategy actions of multinational corporations are extracted using text analysis. To guarantee robustness and lessen interpretation bias, a triangulation technique is used, combining academic research, international trade databases, and policy papers (Ivanov, 2021; UNCTAD, 2023).

Restructuring global supply chains is the dependent variable, and the evaluation approach rigorously maps the ways in which each element influences it by determining its involvement in relocation decisions, network diversification, and resilience-building. The study may go beyond descriptive reporting to a causal understanding of how

geopolitical, technological, and policy-related elements interact to rearrange supply chains thanks to this paradigm, which forms the basis for the data analysis that follows



Table 1 : Analysis Framework

Conceptual Framework Keyword	Factor	Source (2020-2025)	Expected Impact on Global Supply Chain
Geopolitical Risk	U.S China tariffs, exports controls	Bown & Irwin, 2020; Ciuriak & Xiao, 2021	Heightened risk perception prompts diversification away from China
FDI Realignment	Manufacturing relocation to ASEAN, India, Mexico	Luo & Zahra, 2022; UNCTAD, 2023	Emergence of new manufacturing hubs and distributed production.
Digital Resilience	AI, IoT, Blockchain adoption in Supply Chain	Ivanov, 2021; Queiroz et al., 2022	Greater visibility, Faster adaptation, Predictive disruption management
Regionalization & Nearshoring	SEZs, regional trade corridors	Zeng, 2021; Baldwin & Freeman, 2022	Shorter lead times, reduced dependency on distant suppliers
Policy Incentives	Tax holidays, Industrial subsidies, Infrastructure	Evenett & Fritz, 2022; OECD, 2022	Stronger investment pull toward politically stable economies
ESG & Sustainability	Low-carbon manufacturing, Green financing	Sarkis & Zhu, 2021; Rodrik & Stantcheva, 2024	Shift toward sustainable and socially responsible sourcing
Trade Agreements	RCEP, CPTPP, USMCA	Kim & Lee, 2020; Baldwin, 2021	Enhanced market access encourages relocation to member countries
Risk Mitigation Strategies	Multi-sourcing, inventory buffers, local warehousing	Ivanov & Dolgui, 2020; Christopher & Peck, 2022	Improved resilience, reduced exposure to single-country shocks

3.4 Research Instrument

Content analysis matrices are the research tools utilised in this study because they relied on secondary data. Journal articles, policy documents, industry reports, and case studies are just a few of the textual sources from which these tools were created to methodically collect, arrange, and analyse data.

To evaluate and contrast the approaches, conclusions, and ramifications of ten scholarly journal articles chosen for the conceptual framework, a literature review matrix was created. Columns for author(s), year, research goal, sample, methodology, important findings, and applicability to the current study were all included in this matrix.

Themes from various qualitative sources were also coded using a content analysis checklist. The research hypotheses were contrasted with categories such as policy incentives, digital readiness, FDI migration, relocation drivers, and risk management techniques. The researcher was able to triangulate information from many sources and identify cross-cutting patterns thanks to this tool.

By ensuring that data extraction was organised, consistent, and traceable, these tools improved the research's validity and reliability. Prior to a thorough study, the tools were improved based on user feedback after being piloted with a small number of papers to test clarity.

3.5 Data Analysis

To examine the data gathered, the study combined descriptive statistical analysis with qualitative content analysis. These methods facilitated the triangulation of results from many data kinds and were consistent with the mixed-methods approach.

Content Analysis: Journal papers, policy reports, and case studies were all subjected to this qualitative method. To find recurrent themes in the documents like digital preparedness, trade-induced relocation, governmental incentives, and risk management tactics thematic coding was employed. The results were then organised in matrices consistent with the assumptions and conceptual framework.

Chapter 4 Findings and Discussion

4.1 Presentation of Findings

This chapter presents the main conclusions drawn from the secondary data study of how trade tensions between the US and China affect global supply chains. The findings are then discussed, their implications for supply chain performance and resilience examined, and their relationship to the conceptual framework and current literature is discussed.

4.1.1 Overview of Global Supply Chain Restructuring Trends

Global supply chain arrangements have changed significantly since 2018 as a result of trade tensions between the US and China. Multinational companies' (MNCs') exclusive reliance on China is giving way to diversification.

The United States' imports from China decreased from 22% in 2018 to 13% in 2023. India saw a 9% increase in foreign direct investment, Vietnam saw an 11% increase, while China saw a 5% decline. A 2024 Deloitte survey found that more than 68% of supply chain executives appreciate diversification. One well-known strategic solution is the "China Plus One" approach, which enables businesses to diversify their risk by growing production outside of China while keeping a presence in China.

These recurring changes indicate a basic strategic decoupling that is motivated more by the need for geopolitical protection and operational continuity than by pure cost effectiveness. This may result in "optimal resilience" supply chains as opposed to "optimal cost" supply chains since it redefines "efficiency" to encompass resilience and risk reduction.

Table 2: Key Quantitative Indicators of Global Supply Chain Shifts

Indicator	Data Point (2018)	Data Point (2023/2024)	Source
U.S. Imports from China (as % of Total U.S. Imports)	22%	13%	USTR, Peterson Institute for International

Indicator	Data Point (2018)	Data Point (2023/2024)	Source
FDI Inflows to China (Percentage Change)	N/A	-5%	UNCTAD (2023)
FDI Inflows to Vietnam (Percentage Change)	N/A	+11%	UNCTAD (2023)
FDI Inflows to India (Percentage Change)	N/A	+9%	UNCTAD (2023)
Executives Prioritizing Diversification	N/A	>68%	Deloitte (2024)
Executives Investing in Digital Solutions (for real-time tracking/predictive analytics)	N/A	74%	Deloitte (2024)

4.1.2 Impact of Geopolitical Risk and Trade Tensions on Supply Chain Design

This section presents findings related to the *external drivers* in the conceptual framework, specifically U.S.–China trade tensions and geopolitical risk, and their impact on supply chain decisions.

Geopolitical issues, in particular trade disputes between the United States and China, are being given priority in the architecture of global supply chains. The focus on resilience in firms rather than cost reduction is a major divergence from earlier lean concepts. Businesses use flexible tactics, such as expanding inventory buffers, diversifying their supply bases, and sourcing, to lessen disruptions. Manufacturing is increasingly being internalised or nearshored in high-risk environments. By producing "contagion waves," geopolitical upheavals make people more susceptible to upstream shocks.

This shows a shift from crisis management to strategic foresight, with geopolitical risk being deliberately integrated into supply chain architecture. Nevertheless, when implementing resilience-boosting tactics like nearshoring or higher inventory, resilience and conventional cost efficiency are traded off.

These findings confirm that external drivers act as primary triggers influencing firm-level strategic responses such as diversification and nearshoring.

4.1.3 Realignment of Foreign Direct Investment (FDI) and Emergence of New Manufacturing Hubs

This section analyses findings related to *firm-level strategic responses*, particularly FDI relocation, as outlined in the conceptual framework.

Tensions over trade between the United States and China have had a substantial impact on global FDI flows, creating new manufacturing hubs. China's historical dominance is under threat from rising tariffs, growing labour costs, and political uncertainty. Deliberate diversification caused FDI to China to fall by 5% while FDI to Vietnam and India increased by 11% and 9%, respectively. With incentives and better infrastructure, new hubs like Vietnam, India, and Mexico aggressively seek out investment. According to PwC (2024), over 60% of businesses moved their supply chains because of the host country's trade legislation and incentives. Benefits of this FDI realignment include infrastructure development, regionalisation of supply chains, manufacturing diversification, and policy alignment with the host country. This coordinated move by MNEs implies a planned redrawing of the global manufacturing map driven by operational resilience and geopolitical insulation, despite the fact that it entails giving up certain cost benefits. Favourable trade agreements and political stability are having a growing impact on investment decisions.

The shift in FDI flows demonstrates how firms respond to external drivers and contributes to structural outcomes such as the emergence of new manufacturing hubs.

4.1.4 Role of Digital Resilience and Adaptability

This section examines *digital resilience* as a firm-level capability that supports strategic responses within the conceptual framework.

Digital resilience is crucial for managing trade tensions between the US and China because it enables businesses to predict, react to, and recover from interruptions. Digital twins, blockchain, IoT, and AI all provide visibility and adaptability, which facilitates real-time optimisation and predictive simulations. Companies with advanced digital capabilities react swiftly to shifts. 74 percent of CEOs have made investments in digital solutions for predictive analytics and real-time tracking, according to the World Bank's Logistics Performance Index (2023). These nations recover more quickly and are better able to realign. The probability of supply chain reorganisation during disruptions is positively correlated with higher levels of digital maturity.

Since digitalisation makes proactive risk identification and dynamic reconfiguration possible, it has become a strategic necessity for resilience. This raises the possibility of a "digital divide" in supply chain competitiveness. This is indicated by supply chains that are becoming more self-sufficient and self-optimizing as a result of the implementation of these technologies.

These findings indicate that digital resilience strengthens the effectiveness of firm-level responses and enhances overall supply chain resilience.

4.1.5 Dynamics of Regionalization Versus Globalization in Supply Chain Networks

This section presents findings related to *regionalization*, which functions both as a strategic response and a structural outcome in the conceptual framework.

The globalisation paradigm is under threat from a growing tendency towards regionalisation driven by recent shocks and geopolitical dangers. Businesses must reassess globally spread operations, which now face more logistical risks and trade hurdles, in light of factors including nationalism, COVID-19, Brexit, and U.S.-China trade tensions. Many nations employ regionalisation, focussing production and distribution within certain geographic blocs such as the USMCA, RCEP, and EU, which are well-liked for their effective trade and political alignment.

Regional value chains have the advantages of increased visibility, reduced transit costs, and faster response times. In these fields, flexible production is made possible by digital technologies. Regionalisation, however, may increase redundancy costs, split innovation, and restrict access to specialised global inputs. As a strategic rebalancing, regionalisation creates "glocal" supply networks that integrate global connections with local proximity. Political alignment influences the creation of new trade blocs, which may lead to a more fragmented global trading system characterised by "friend-shoring."

This confirms that regionalization is a key pathway through which firm responses translate into broader supply chain restructuring.

4.1.6 Influence of Policy Incentives and Government Interventions

This section focuses on *government policy incentives* as external drivers influencing supply chain restructuring.

Government policy interventions and incentives have greatly expedited supply chain reconfiguration in the midst of trade and geopolitical turmoil. Subsidies, reshoring incentives, and export restrictions are examples of state-led trade policies that influence investment in politically connected economies and fortify regional blocs. In an effort to diversify and support domestic manufacturing, governments around the world employ industrial subsidies, tariff reforms, and investment screening to draw in and keep supply chain segments.

Countries like Vietnam, India, and Mexico employ tax benefits, industrial parks, and better logistics to entice industries to relocate. Public-private partnerships, customised policy frameworks, and special economic zones make the host country more appealing. Sustainability-related incentives, such as carbon credit programs and green energy subsidies, are influencing the next wave of restructuring by promoting sustainable and localised production.

This widespread government participation points to a change from market-driven supply chain evolution to policy-driven supply chain evolution, with national industrial policies and geopolitical alignments at its core. When sustainability goals are combined, geopolitical and environmental objectives further converge.

These findings show that policy incentives not only trigger firm-level responses but also shape the direction of global supply chain transformation.

4.1.7 Sector-Specific Adaptations and Responses

This section analyses sector-specific variations in *firm-level strategic responses* within the conceptual framework.

The effects of trade disputes differ significantly depending on the unique features of each business.

In order to expand assembly to nations like Thailand, Mexico, and Vietnam while maintaining higher-value operations in key regions, electronics companies use a "China Plus One" strategy for modular production. Biotechnology and pharmaceutical businesses must relocate in expensive and dangerous ways due to strict rules. Conversely, businesses enhance their supplier connections, use dual sourcing, and boost buffer supplies. In times of crisis, government action also preserved local manufacturing.

The just-in-time manufacturing-based automobile sector is partially moving. Companies prioritise regional hubs and supplier agreements to provide geographic flexibility without sacrificing deadlines.

Because of their labour-intensive nature and streamlined supply chains, textiles and apparel have a high degree of mobility. Trade agreements are particularly vulnerable to activities moving quickly to nations like Bangladesh, India, and Cambodia in order to receive tariff relief and wage benefits. This diversity illustrates how the best restructuring tactics vary by industry and are influenced by labour intensity, modularity, capital intensity, regulatory burden, and modularity. This implies that complex, sector-specific policy approaches and a varied global supply chain environment are needed.

The findings highlight that responses to external drivers differ across industries, influencing the extent and form of supply chain restructuring.

4.1.8 The Strategic Role of Multinational Enterprises (MNEs)

This section examines the role of multinational enterprises (MNEs) as key actors executing *firm-level strategic responses* in the conceptual framework.

MNEs are active actors in the global supply chain realignment, diversification, acceleration of decoupling, and reconfiguration. Being important organisers of global value chains, their decisions have a big effect on the economy. In reaction to export restrictions and tariffs, numerous major multinational enterprises have set up secondary production facilities in South Asia, Southeast Asia, and Latin America. When choosing sites, they use "risk-sensitive" tactics that take geopolitical intelligence into account.

MNEs employ hybrid governance structures to boost flexibility and lessen their need on a single national regulatory framework. "Strategic decoupling" is the process of separating activities for the Chinese home market from those for foreign clients in order to resolve conflicts without giving up on either market. Large multinational businesses (MNEs) have a major advantage in volatile environments because they can withstand the costs of relocation and reorganisation better than SMEs.

The "strategic decoupling" of multinational enterprises (MNEs) suggests a division of global value chains, with separate supply networks catering to various geopolitical markets. This results in higher expenses but also increased resilience. The disparity in adaptability between MNEs and SMEs puts smaller companies at a structural disadvantage and may lead to market consolidation.

These findings confirm that MNEs play a central role in translating external pressures into structural supply chain outcomes

4.2 Discussion

4.2.1 Interpretation of Key Findings in Relation to Research Objectives

The results verify that global supply networks are moving away from China as the only hub and towards a variety of centres in South Asia, Southeast Asia, and Latin America. The "China Plus One" approach is a prime example of the change in strategic emphasis from cost-effectiveness to regionalisation, resilience, and diversification.

It is established that more than 68% of executives have embraced diversification, "China Plus One," and nearshoring (FDI to Mexico, USMCA integration). Although direct measurement of vulnerability reduction is outside the purview of this study, the regular use of these tactics points to perceived efficacy. Alternative hubs like Vietnam and India are effectively embracing change, as shown by a rise in FDI and government incentives.

The study notes that MNEs have a considerable advantage in paying for relocation expenses, which subtly highlights the challenges encountered by SMEs. Long-term consequences include sustained regionalisation, more government action (including sustainability legislation), and ongoing investments in digital resilience. National security and resilience concerns are having a bigger impact on international trade policy.

4.2.2 Linkage to Existing Literature and Conceptual Framework

The results largely support the conceptual framework, which maintains that external pressures (trade tensions, geopolitical risk, FDI shifts, policy incentives, regional agreements, sector-specific factors) mediate firm-level capabilities (digital maturity, strategic flexibility, MNE governance, risk management).

Current studies on digital resilience (Ivanov, Queiroz et al., World Bank, Deloitte, Srinivasan et al.), production relocation and "China Plus One" (Liu & Woo, Zhan et al.), resilience over cost (Antràs, Baldwin & Freeman), and FDI realignment (UNCTAD, Luo & Zahra, Gereffi & Pananond, PwC) The regionalisation tendency is consistent with the findings of Miroudot, Kim & Li, Zhan et al., and Antràs. The OECD, UNCTAD, Rodrik & Stantcheva, Evenett & Fritz, and Bown all endorse government policy impact. Liu & Woo, Manuj & Mentzer, Baldwin & Freeman, Zhan et al., Gereffi, and Kano et al. are all in agreement with sector-specific adaptations and the roles of MNEs.

The study contributes to the body of previous research by offering current empirical evidence and emphasizing the interdependencies of components, such as how digital resilience enables other methods. It also draws attention to sustainability as a fresh force behind policy.

4.2.3 Implications for Supply Chain Resilience and Performance

The regionalization reflects a major move away from conventional cost-efficiency and towards resilience and flexibility. Through regionalization, diversification, and “China Plus One,” single-point-of-failure risks are decreased, improving total resilience. Significant investment in digital transformation, which offers insight and predictive capacities for prompt response, is a foundation for future resilience. On the other side, increased costs for improved resilience are often the consequence of redundancy, new infrastructure, and digital solutions. This shifts the concept of “optimal” supply chain design from “just-in-time” to “just-in-case” or “just-in-resilience,” suggesting that resilience and traditional efficiency must be traded off. Developing resilience is a crucial strategic necessity for long-term competitiveness in the current uncertain global trade climate.

4.2.4 Unanticipated Observations or Nuances

Beyond merely avoiding tariffs, the restructure represents a profound strategic change motivated by long-term stability and greater geopolitical risk. Through a range of incentives and sustainability regulations, governments actively and architecturally shape supply chains, going beyond simply market-driven evolution. The incorporation of sustainability-related incentives suggests a confluence of geopolitical, economic, and environmental objectives. There may be a “digital divide” whereby technology preparedness is a requirement for successful geopolitical shock adaption, favouring technologically sophisticated businesses and countries. Finally, the gap between SMEs and large MNEs in terms of their ability to adapt is widening. MNEs can absorb relocation costs and employ sophisticated methods, but SMEs confront substantial challenges. This might lead to a “two-speed” economic revolution and market consolidation.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

This study examined how the strategic orientation and composition of global supply networks have changed as a result of the trade disputes between the United States and China. The main problem that needed to be resolved was the substantial disruption caused by these conflicts, which led to higher operating expenses, more uncertainty, and the pressing need for multinational firms to restructure their international operations.

Using mostly secondary data, a mixed-methods strategy that was both exploratory and descriptive was employed. To do this, a thorough analysis of pertinent case studies, industry reports, scholarly works, and peer-reviewed journal articles was necessary. Information-rich sources were chosen using a non-probability purposive sampling strategy, and data analysis triangulated results and ensured robustness by combining descriptive statistical analysis with qualitative content analysis.

The results unequivocally show that global supply chains have undergone a significant transformation. The United States is less dependent on China as its only industrial base, as seen by the drop in U.S. imports from China from 22% in 2018 to 13% in 2023. At the same time, foreign direct investment (FDI) has shifted, with China seeing a 5% decline and alternative manufacturing hubs like Vietnam and India seeing notable growth of 11% and 9%, respectively. A balanced approach that emphasises resilience, diversification, and regionalisation has replaced a single concentration on cost-efficiency as the "China Plus One" model has become a popular strategy.

Global corporations frequently employ the "China Plus One" approach, supply chain diversification, and nearshoring. Diversification is highly valued by more than 68% of supply chain executives. These tactics are used with the specific goal of lowering operational vulnerabilities, even though their direct efficacy varies depending on the industry. Thanks in large part to strong government policy incentives, alternative manufacturing hubs like as Vietnam, India, and Mexico are successfully absorbing these moves. Furthermore, the study subtly highlights how difficult it is for small and medium-sized enterprises (SMEs) to adjust to these changes, whereas giant multinational corporations (MNCs) are more adaptable.

Over time, the ongoing trade tensions are promoting a sustained regionalisation trend, more proactive government involvement in supply chain design (including sustainability-related legislation), and ongoing investment in digital resilience as a strategic necessity. Corporate operations are becoming more risk-averse and varied by nature, while national security and resilience considerations are increasingly influencing global trade policy, which is shifting beyond just economic liberalisation to include more expansive geopolitical goals.

5.2 Recommendation

Based on the findings, the following recommendations are put forth for businesses and policymakers:

For Businesses

Prioritize Resilience over Pure Cost Efficiency: Even if it means paying more up front, businesses should keep incorporating resilience and risk mitigation into their fundamental supply chain design. Examples of this include keeping bigger inventory buffers and diversifying sourcing.

Invest Strategically in Digital Transformation: Digital solutions for real-time tracking, predictive analytics, and digital twins are now necessary for flexibility and proactive risk management. Businesses should accelerate their digital maturity to boost visibility and responsiveness.

Embrace Diversification and Regionalization: The "China Plus One" approach or comparable approaches ought to be applied in order to distribute operational risks over several regions. Utilising regional hubs can reduce transportation costs and expedite response times.

Integrate Geopolitical Intelligence: Supply chain strategies must actively integrate geopolitical risk assessments into operational planning and site selection in order to foresee and lessen potential shocks.

For Policymakers

Develop Targeted Support for SMEs: Given the gap in adaptive ability, governments should create particular programs, financial incentives, and logistical support to assist small and medium-sized firms (SMEs) in diversifying and reconfiguring their supply chains.

Align Trade Policy with Resilience and Sustainability: Through customised incentives, trade policies should aggressively promote nearshoring, reshoring, and diversification in order to create production networks that are more environmentally friendly and localised. Additionally, they must to include sustainability goals like green energy subsidies.

Foster Regional Trade Blocs and Infrastructure: For the sake of attracting foreign direct investment and facilitating effective regional value chains, governments ought to keep fortifying regional trade agreements and investing in infrastructure inside these blocs.

Promote Digital Infrastructure Development: National policies should support the development of advanced digital logistics infrastructure to enhance the whole supply chain's capabilities and competitiveness.

5.3 Further Study

While this study provides a comprehensive overview, several areas warrant further investigation:

Quantitative Impact of Resilience Strategies: The main goal of future study may be to quantify the direct operational and financial benefits of specific resilience methods (such as buffer stocks and dual sourcing) in lowering susceptibility across different industries.

In-depth Analysis of SME Adaptation: Through qualitative case studies, future research should particularly examine the particular difficulties and effective adaptation strategies faced by small and medium-sized enterprises when negotiating global supply chain transformation.

Long-term Economic Implications of Regionalization: Research might assess the long-term economic impacts of growing regionalisation as opposed to globalisation on international trade flows, innovation ecosystems, and consumer prices.

Role of Specific Digital Technologies: Future research may focus further on the precise uses and efficacy of cutting-edge digital technologies (such as sophisticated blockchain applications and AI-driven autonomous supply chains) in boosting supply chain resilience.

Comparative Policy Effectiveness: Comparative studies across different countries or regions could be used to assess how well different government policy incentives work to draw in foreign direct investment (FDI) and change supply chains.

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