



Geopolitical Economy and Supply Chain Restructuring: Mechanisms and Pathways of Regionalization

Yunyi Gong*

School of Foreign Languages, East China University of Science and Technology, Shanghai
200000, China

*19816357609@163.com

Abstract. Amid intensifying geopolitical competition and recurrent global crises, global supply chains are shifting from an “efficiency first” toward a “security first” orientation. This article examines the internal logic of geopolitically driven supply chain regionalization by integrating Global Value Chain Theory with perspectives from geopolitical economy. The study identifies four principal driving factors: strategic competition among major powers, exposure of systemic risk, domestic political pressure, and technological change. It demonstrates how three intermediary mechanisms—industrial policy that reshapes the institutional environment, corporate risk management that updates managerial cognition, and friend-shoring that redefines location criteria—translate macro-level geopolitical pressures into micro-level firm decisions. A comparative analysis of the Asia Pacific, Europe, and North America reveals that regionalization does not amount to uniform deglobalization; rather, it produces three differentiated patterns: competition driven fragmentation, crisis driven autonomy, and institution driven agglomeration, yielding a hybrid configuration of regional fortresses alongside continued global linkages. Theoretically, the article challenges the political neutrality assumption of traditional Global Value Chain Theory by proposing a mid-level framework of geopolitics, institutional constraints, and firm response that explicates the causal chain linking power politics to the geographical reconfiguration of production networks. Practically, the findings offer systematic guidance for firms to design layered supply chain strategies and modular, reconfigurable networks that balance efficiency and resilience, and they provide new analytical lenses for assessing the evolving global division of labor.

Keywords: Supply Chain Regionalization, Geopolitical Economy, Friend-shoring, Supply Chain Resilience, Global Value Chain Restructuring.

1 Introduction

Since the end of the Cold War, the continuous expansion of transportation networks and the rapid development of information technology have fostered deeper integration of the world economy [1]. Under these conditions, many firms, guided by the priority of efficiency, disaggregate production into multiple stages and configure activities globally according to regional comparative advantages, thereby constructing highly

optimized supply chain systems. For example, the petroleum industry exemplifies a global division of labor, linking crude oil production in the Middle East, refining and processing in Europe, and consumption in markets worldwide [2]. However, this cost-minimization model is not universally optimal, and its intrinsic fragility has become increasingly apparent in the current volatile geopolitical environment. Recent developments, such as trade frictions arising from strategic competition between China and the United States, the spillover effects of the Russia–Ukraine conflict, and the disruptions to production networks caused by the Coronavirus Disease 2019 (COVID-19) pandemic, have exposed systematic risks inherent in global supply chains. The transition from globalization toward regionalization of supply chain configurations appears to be irreversible, with geopolitical considerations emerging as a central force reshaping the global production network.

Existing research provides an insufficient account of this phenomenon. Scholarship in supply chain management has traditionally emphasized operational efficiency and cost control, whereas international political economy has focused on macro-level power dynamics and institutional competition. Mid-level theoretical work that explains how geopolitics drives supply chain transformation remains relatively scarce. Conventional Global Value Chain Theory explains the economic logic of supply chain globalization, emphasizes the primacy of market forces and points out that enterprises can gain competitive advantages by optimizing cross-border division of labor, but it does not fully address supply chain security concerns under rising geopolitical risk [3]. This theoretical gap limits scholarly understanding of contemporary change and yields an absence of systematic frameworks for firms responding to transformation in practice.

Accordingly, this study examines the regionalization of supply chains induced by geopolitical factors, and proposes the following research questions: How does geopolitical risk affect enterprises' location decisions regarding supply chains through specific mechanisms? What differentiated paths do supply chain transformations present under different regional backgrounds? By integrating Global Value Chain Theory with perspectives from geopolitical economics, the paper develops an analytical framework of “driving factors, mechanisms, and transformation paths” and adopts a qualitative comparative analysis method based on secondary data to reveal the internal logic underlying the shift from globalization to regionalization of supply chains. The study first traces the evolution and theoretical foundations of global supply chain research. It then elaborates three core mechanisms of industrial policy adjustment, strengthened risk management, and outsourcing to politically aligned partners. Finally, through comparative analysis of illustrative cases from the Asia Pacific, Europe, and North America, the paper identifies differentiated transformation paths across regions. The contribution of this research is to establish a systematic linkage between geopolitics and supply chain transformation, to offer new explanatory dimensions for the reconfiguration of global division of labor, and to provide practical guidance for firms seeking to balance efficiency and resilience in the context of supply chain restructuring.

2 Literature Review and Theoretical Framework

2.1 Evolution of Global Supply Chain Research

Research on global supply chains emerged in the 1980s, with scholars examining their definitions, characteristics, and operational mechanisms. Porter (1985) provided a foundational contribution with Value Chain Theory, arguing that firms can secure competitive advantage by optimizing the division of labor within the value chain [4]. Porter distinguishes primary activities from support activities and emphasizes value creation through internal process optimization. Although his framework centers on firm boundaries, the core insight that value creation stems from division of labor and cooperation underpinned subsequent analyses of global expansion. Following the end of the Cold War and the liberalization of trade in the 1990s, the global production model expanded rapidly. Gereffi et al. (2001) developed the global commodity chain and global value chain frameworks, systematically examining the formation and governance of international divisions of labor [5]. They conceptualize global value chains as networked systems of activities including research and development, production, processing, assembly, and distribution that span multiple countries. Firms obtain advantages by participating in these networks and by optimizing their positions. They differentiated producer driven governance, characteristic of capital and technology intensive industries, from buyer driven governance, more common in labor intensive consumer goods sectors. This typology remains useful for understanding industry specific global configurations. Subsequent contributions, such as Sturgeon (2002) on modular production networks, demonstrated how information technology further fragmented and dispersed production geographically, while Baldwin (2016) highlighted how lower transportation costs and information advances reshaped global value chains [3]. In recent years, the prominence of geopolitical risk has prompted recognition of the limitations of efficiency focused global layouts. Scholarship has shifted from questions of how to optimize global layouts to how to balance efficiency and resilience, moving from cost minimization to cost optimization under controllable risk [6]. However, this shift is often descriptive and policy oriented, leaving deeper theoretical accounts of geopolitical drivers underdeveloped.

2.2 Interdisciplinary Research on Geopolitics and Supply Chains

Systematic study of the relationship between geopolitics and supply chains is more recent and intensified after the escalation of China-United States trade tensions in 2018. Existing literature can be grouped into three strands. The first is weaponized interdependence. Drezner et al. (2021) argued that the networked interdependence produced by globalization could be used as an instrument of state power [7]. States occupying hub positions in networks can threaten decoupling or supply denial to translate economic interdependence into political leverage. This perspective helps explain actions such as technology restrictions and financial sanctions, by recognizing node positions in supply chains as sources of structural power. The second strand addresses securitization of economic relations. Historically separated from national security, economic

domains such as critical infrastructure, core technologies, and strategic resources have increasingly been framed as security issues, thereby legitimizing unconventional economic policies. The European Commission's "de-risking" strategy in 2023 and the United States' "supply chain security" discourse in the CHIPS and Science Act both illustrate this trend [8]. This approach emphasizes how security discourses enable policy shifts but rarely examines firm level responses. The third strand focuses on supply chain resilience and friend-shoring. Policy oriented work emphasizes regionalization, diversification, and relocation strategies to reduce supply interruption risk. Since the Russia-Ukraine conflict in 2022, terms such as friend-shoring and nearshoring have gained traction [9]. Much of this literature treats regionalization primarily as firm level risk avoidance and does not systematically analyze the geopolitical mechanisms that shape corporate location choices, particularly under great power competition. In sum, although progress has been made at the intersection of geopolitics and supply chains, a gap remains in that international relations scholarship addresses macro-level power dynamics, while operations and management research focuses on firm level risk responses. The mediating mechanisms whereby geopolitics translates into firm location decisions through industrial policy, institutional constraints, and related channels are underexplored. This lacuna motivates development of a systematic analytical framework.

2.3 Theoretical Framework: Global Value Chain Theory and Geopolitical Economy

Building on the foregoing literature, this study integrates Global Value Chain Theory with geopolitical economy to construct an analytical framework for geopolitically driven supply chain transformation. The integration is necessary because Global Value Chain Theory elucidates the economic logic of supply chain globalization but does not account for deglobalization tendencies under geopolitical stress, while geopolitical economy explains power wealth interactions but offers limited analysis of micro-level production networks. Combining these perspectives compensates for their respective blind spots.

Traditional Global Value Chain Theory often assumes political neutrality, treating countries as passive repositories of comparative advantage and neglecting the active role of geopolitical competition in shaping value chain geography [3]. When states treat supply chains as strategic assets rather than instruments of pure economic efficiency, the logic of "optimal efficiency" yields to concerns for safety and controllability, which drives the regionalization of supply chains. Geopolitical economy contributes a macro lens anchored in traditions from mercantilism to contemporary scholarship, emphasizing that international economic relations are an extension of political power and that market structures are shaped by political arrangements. Strange's theory of Structural Power is especially useful for analyzing how major powers reshape the geography of production by controlling critical production links, setting technology standards, and manipulating financial and payment systems [10]. The framework advanced here proposes that geopolitical risks induce supply chain regionalization through an institutional constraint to firm response mechanism. Host governments alter the institutional

environment confronting firms through industrial policies including subsidies, export controls, and rules of origin, and through construction of risk discourses. Firms then recalibrate their participation strategies in global value chains, weighing efficiency losses against political risk, and pursue differentiated paths such as regionalization, diversification, or partial reshoring. This proposed framework links macro-level geopolitical competition with micro-level corporate decision making and seeks to fill the mid-level theoretical gap in existing research.

3 Mechanism Analysis of Geopolitically-Driven Supply Chain Transformation - A Conceptual Framework

3.1 Identification of Driving Factors

Supply chain transformation driven by geopolitical forces is not attributable to a single cause but emerges from the interaction of multiple, compounding risks and policy responses. Identifying the core driving factors is a prerequisite for understanding the transformation mechanisms. First, strategic competition among major powers and pressures toward selective decoupling are important. The rivalry between China and the United States constitutes a primary geopolitical impetus for recent supply chain restructuring. As the United States has designated China a systemic competitor, technology restrictions have extended beyond individual firms to affect entire industry chains, including semiconductors, artificial intelligence, and quantum computing. Legislative measures such as the 2022 CHIPS and Science Act and recent investment restrictions on China effectively reconfigure the geographic boundaries of the global technology supply chain under the rubric of national security. This selective decoupling does not entail a complete severance of economic ties but erects segmented barriers within strategic domains, compelling firms to adopt contingent positioning between China and the United States.

Second, the exposure of systemic risks and a rising demand for resilience have accelerated transformation. The COVID-19 pandemic and the Russia-Ukraine war have revealed fundamental fragilities in global supply chains. Shortages of personal protective equipment, vaccines, and semiconductors illustrate how highly centralized production structures lack sufficient buffers in the face of large shocks. Risk perceptions among firms and policy makers have shifted from “just-in-time” toward “just-in-case,” and from efficiency optimization toward prioritizing resilience [6]. This cognitive shift translates directly into practical pressures for supply chain diversification.

Third, domestic political pressures and the securitization of industrial policy are driving policy intervention. The elevation of supply chain concerns on domestic political agendas has increased the legitimacy of policy intervention. Industrial hollowing in the United States Rust Belt, European anxieties over energy dependence, and concerns in developing countries about entrapment in medium technology segments have generated bipartisan consensus on supply chain security. Policy makers create political incentives and institutional constraints for corporate location adjustment by framing external dependence as a security vulnerability.

Fourth, technological change has improved the feasibility of regionalization. Advances in digital manufacturing, three-dimensional printing, and artificial intelligence assisted production have reduced the cost threshold for geographically distributed, smaller scale production, making regional manufacturing more economically viable. Concurrent increases in automation have diminished some developing country labor cost advantages, partially offsetting the benefits of geographic concentration and creating technical conditions conducive to nearshoring. These four factors operate interactively. Great power competition supplies political impetus, systemic risk exposure alters cognitive frameworks, domestic politics provides institutional channels, and technological change lowers transformation costs. Together they facilitate a structural shift of supply chains from globalization toward regionalization.

3.2 Mechanisms: Industrial Policy, Risk Management, and Friend-shoring

Geopolitical factors do not act directly on firm decisions but exert their influence through three mediating mechanisms: industrial policy reshapes the institutional environment, risk management alters firms' perceptions and behavioral patterns, and friend-shoring becomes the concrete form of regionalized transformation.

3.2.1 Industrial Policy: From Efficiency Incentives to Safety Constraints. Traditional industrial policy aims to correct market failures and cultivate comparative advantage. Contemporary policies related to supply chains, however, display an explicit security orientation and geopolitical content, shifting the emphasis from pure efficiency incentives to risk aversion.

Export controls and technology restrictions represent the most direct instruments. Measures such as the Entity List maintained by the United States Department of Commerce and the Foreign Direct Product Rule function effectively as extraterritorial jurisdictions that restrict access to critical technologies, equipment, and software. These regulations generate a chilling effect: even firms not directly sanctioned tend to preemptively adjust their supply-chain footprints to avoid potential risks [11]. The case of *Huawei* prompted many technology firms to accelerate efforts to diversify or reorient supplier relationships and inputs away from perceived risk vectors.

Subsidies and incentives for industrial reshoring provide positive pull factors. The CHIPS and Science Act allocates \$52 billion in subsidies for domestic semiconductor manufacturing, and the EU Chips Act plans to mobilize €43 billion; both justify these measures on the grounds of "secure supply chains" [8]. These subsidies not only change cost-benefit calculations but also directly shape firms' location decisions through attached conditions (for example, beneficiaries may be prohibited from expanding advanced capacity in China for 10 years). Rules of origin and trade agreements institutionalize regionalization from the regulatory level. The United States–Mexico–Canada Agreement (USMCA) raised the regional value content requirement for automotive parts from 62.5% to 75% and introduced a labor value content clause, effectively using rules to force production stages to concentrate within the North American region [12]. This form of "institutionalized regionalization" is more constraining than simple tariff

barriers because it penetrates value-chain internal processes, making it difficult for firms to evade the requirements through straightforward re-exports. Thus, the mechanism of industrial policy can be summarized as: raising location-specific risk premia via negative measures, lowering the cost of alternative options via positive incentives, and locking in regionalization pathways through rule restructuring. The three work together to drive firms to adjust their global footprints.

3.2.2 Risk Management: From “Probability-based Calculation” to “Scenario Planning”. Traditional supply chain risk assessments emphasize operational factors such as supplier solvency and logistics disruption probabilities. Geopolitical risk analysis requires incorporation of macro-level variables including interstate conflict likelihood, sanction trajectories, host-country political stability, and infrastructure security. Leading firms have created dedicated roles for geopolitical risk analysis, embedding international political assessment into supply chain decision making. This evolution manifests as a shift from efficiency optimization toward prioritizing resilience. Firms adopt strategies such as multi sourcing to avoid single supplier dependence, maintaining higher inventory levels to provide buffers, and internalizing critical processes to reduce external exposure. Each strategy entails efficiency tradeoffs in exchange for greater supply stability.

Firms increasingly apply scenario planning, constructing plausible futures such as sustained strategic competition, escalation in the Taiwan Strait, or a technology driven cold conflict, and assessing supply chain exposure under each scenario. Preparing for adverse contingencies thus becomes a rationale for regional proximity as a mechanism to reduce situational uncertainty. Risk management therefore functions not only as a reactive tool but as an active shaper of norms about acceptable supply chain configurations. When excessive concentration is reframed as imprudent risk management, regionalization and diversification gain legitimacy beyond narrow cost considerations.

3.2.3 Friend-shoring: A Practical Form of Regional Transformation. The term “friend-shoring” was formally introduced by United States Treasury Secretary Janet Yellen in 2022 and refers to relocating supply-chain activities to political allies or “trusted” countries [9]. The essence of the concept is the substitution of political trust for pure economic efficiency as the primary criterion for supply-chain location choices. The key distinction between friend-shoring and traditional offshore outsourcing lies in the basis of trust: while conventional offshoring rests on contractual trust and cost comparative advantage, friend-shoring is grounded in political-institutional affinity and security-alliance relationships. This shift generates a pronounced “political premium,” whereby firms accept higher production costs in exchange for “political security” in their supply chains.

Friend-shoring typically follows a hierarchical logic. At the first tier, key activities are placed within territories of formal allies or strategic partners; intergovernmental semiconductor cooperation among the United States, Japan, and South Korea and transatlantic technology coordination under the Trade and Technology Council exemplify this tier. At the second tier, suppliers are selected among states that share similar

governance norms and rule of law traditions, using instruments such as trusted supplier certification regimes. The third tier comprises risk averse diversification to jurisdictions with stable political relations and lower exposure, even if they are not formal allies. Examples include Southeast Asian hedging strategies and the expanding manufacturing role of Mexico for North American supply chains.

Geographically, friend-shoring contributes to a shift from global dispersion toward regional concentration, producing relatively autonomous networks in North America, Europe, and the Asia Pacific. This regionalization is not complete self-sufficiency; rather, it builds “regional bastions” in critical domains, notably semiconductors, clean energy, and biopharmaceuticals, while retaining global linkages in less critical areas. In sum, the three mechanisms are nested. Industrial policy creates institutional incentives and constraints, risk management supplies the cognitive framework and decision tools, and friend-shoring constitutes the concrete practice and geographic outcome. Together they drive a systemic shift of supply chains from globalization toward regionalization.

3.3 Transformation Paths: Differentiated Response Modes

Drawing on the foregoing driving factors and mechanisms, firms recalibrate their participation strategies in global value chains according to the tradeoff between efficiency and security, resulting in three archetypal pathways: regionalization, diversification, and reshoring or nearshoring.

The technological attributes of industries and their value chain governance structures determine the pace and depth of these transformations. First, the regionalization pathway is most appropriate for industries characterized by high technological intensity, pronounced geopolitical sensitivity, and sufficiently large regional markets, for example semiconductors, new energy vehicles, and cloud infrastructure. Firms pursuing this pathway construct relatively complete regional supply ecosystems centered on major consumer markets, reduce reliance on a single external source, and limit interregional exchanges to non-critical components.

Second, the diversification pathway suits industries with high cost sensitivity and substantial technological standardization, such as apparel, consumer electronics assembly, and basic chemical production. The hallmark of this pathway is maintaining a broadly global footprint while avoiding excessive dependence on any single country, typically by adopting multiple “China Plus One” production locations, including Vietnam, India, Mexico, and Indonesia.

Third, the reshoring or nearshoring pathway applies to sectors where supply interruptions entail exceptionally high costs, where automation is technically feasible, and where proximity to end markets matters for responsiveness, for example precision machinery, pharmaceutical intermediates, and automotive components. Firms following this pathway relocate critical activities to the home country or neighboring states, trading lower unit cost advantages for greater speed of response and supply security. These pathways are not mutually exclusive. Firms frequently combine strategies according to product characteristics and strategic priorities. The transformation process is phased. In the initial phase, firms focus on risk signaling and contingency planning, increasing

inventories and identifying alternative suppliers. In the intermediate phase, firms reallocate substantive investments toward trusted regions through pilot projects and incremental relocation. In the advanced phase, relatively autonomous regional ecosystems emerge, supported by localized supplier networks and institutional backing, and path dependent dynamics reinforce regionalized configurations.

4 Regional Comparison and Case Analysis

The specific manifestations of geopolitically driven supply chain transformation vary markedly across regions due to differences in political and economic structures. This section examines three representative regions, including Asia Pacific, Europe, and North America, and compares their transformation contexts, pathway choices, and implementation outcomes.

4.1 Asia Pacific: China-United States Competition and the “China Plus One” Strategy

The Asia Pacific region is the densest node in global supply chains and the principal arena of strategic competition between China and the United States. China has long served as the world’s factory owing to its comprehensive industrial system, large labor force, and infrastructure advantages. Since the onset of China-United States trade tensions in 2018, however, this configuration has been subject to fundamental adjustment. United States’ policy toward China has shifted qualitatively from engagement premised on economic interdependence to containment that employs technology restrictions and supply chain reconfiguration to limit China’s technological ascent. Legislative measures such as the 2022 CHIPS and Science Act and recent investment restrictions effectively designate areas including semiconductors, artificial intelligence, and quantum computing as strategically sensitive, compelling multinational firms to make contested location choices between China and the United States.

Confronted with geopolitical pressure and rising operating costs, many multinational firms have adopted a pragmatic “China Plus One” strategy: retaining production in China to serve the domestic market while adding capacity in alternative locations such as Vietnam, India, Indonesia, and Mexico to diversify exposure. Consequently, supply chain transformation in the Asia Pacific exhibits a layered pattern rather than a unified regional consolidation. The semiconductor sector is illustrative: the United States dominates equipment design, Japan controls critical materials, South Korea and Taiwan lead advanced manufacturing, the mainland China focuses on mature process nodes and assembly testing, and all actors seek a balance between interdependence and strategic hedging [13]. The “China Plus One” strategy raises short term complexity and costs but has not produced comprehensive decoupling. Nonetheless, the long-term trajectory indicates a shift by firms from concentrated exposure in China to more distributed footprints that include alternative production centers.

4.2 Europe: The Russia-Ukraine Conflict and Energy Supply Chain Reconstruction

The drivers of European supply chain transformation differ from those in the Asia Pacific. In Europe, the acute trigger has been an energy security crisis rather than technological rivalry. Post-Cold War European energy policy rested on the premise of trade for stability, embedding Russia in interdependence through pipeline infrastructure and large-scale gas imports, which exceeded 40 percent of European needs in 2021 [14]. The Russia-Ukraine conflict demonstrates that energy interdependence can be weaponized in crisis and may become an instrument of geopolitical coercion.

Since the conflict began, the European Union has imposed sanctions on Russia and undertaken rapid measures to reconfigure energy supplies. Actions include accelerated construction of liquefied natural gas (LNG) import terminals, substitution of Russian gas with suppliers such as the United States, Qatar, and Australia, temporary recourse to coal and nuclear generation to cover short term gaps, and an intensified deployment of renewable energy to link energy autonomy with climate objectives. By 2024, Russian pipeline gas imports to Europe had fallen substantially while LNG volumes increased significantly, moving the region away from pipeline gas dominance toward a more diversified maritime LNG profile [14].

The energy shock has substantially affected European manufacturing. Energy intensive sectors such as chemicals, steel, and aluminum have faced sharply increased input costs and reduced competitiveness, prompting some capacity closures or relocations. Corporate responses include investments in alternative production bases abroad, as exemplified by BASF's investment in an integrated complex in Zhanjiang, China, and ThyssenKrupp's relocation of some steel production to India, reflecting combined cost and risk considerations [15]. Concurrently, the energy transition has generated new industrial priorities: upstream extraction and processing of critical minerals such as lithium and cobalt, and the domestic manufacturing of batteries and wind power equipment, have become central to European industrial strategies. The European Union has integrated supply chain restructuring into its Open Strategic Autonomy agenda, seeking to reduce critical dependencies while preserving market openness. Instruments such as the 2023 Critical Raw Materials Act and the Net Zero Industry Act establish targets for local processing and strategic stockpiles, thereby promoting regionalization through industrial policy [16].

4.3 North America: USMCA and Nearshoring

Supply chain transformation in North America is marked by institutionalized regionalization. The USMCA, which entered into force in 2020, replaced the North American Free Trade Agreement and established a more formalized regional supply chain architecture through stricter rules of origin and enhanced labor standards. United States' supply chain policy emphasizes reshoring and nearshoring to address industrial hollowing, employment loss, and supply vulnerability. Mexico has emerged as the principal nearshore destination owing to geographic proximity, comparative labor costs, and its integration within regional trade networks. Between 2017 and 2023, Mexican exports

to the United States rose by more than 50 percent, and Mexico displaced China as the United States' largest trading partner in goods [17].

USMCA shapes corporate location choices through three core mechanisms. First, automotive rules of origin require that 75 percent of vehicle content be produced in North America, up from 62.5 percent under the previous agreement, and mandate that 40 to 45 percent of content be produced by workers earning at least \$16 per hour, effectively concentrating vehicle production and key supplier activity within the region [11]. Second, sunset clauses and periodic review mechanisms, which occur every six years, increase policy uncertainty but also reinforce the credibility of regional commitments. Third, strengthened labor and environmental provisions raise compliance costs in Mexico while narrowing institutional differentials between Mexico and the United States. As a result, North America is developing a relatively self-contained manufacturing ecosystem: the United States leads research and development, design, and high-end production; Mexico performs assembly and component manufacturing; and Canada supplies energy and certain critical minerals. This regional system displays strong internal integration and relatively attenuated interregional linkages. Nevertheless, full regional autarky remains unrealistic. High-end semiconductor manufacturing equipment depends on suppliers in the Netherlands and Japan, and certain mineral processing capacities remain concentrated in China, indicating persistent external dependencies.

4.4 Cross Regional Comparison and Summary of Patterns

These three types of regional practices have validated the analytical framework proposed earlier. Geopolitical risks drive corporate adjustment through industrial policies and cognitive restructuring, but the specific path varies depending on regional institutional environment, resource endowment, and industrial characteristics. The Asia Pacific region presents “competition-driven fragmentation”, Europe presents “crisis-driven autonomy”, and North America presents “institutional-driven agglomeration”. This differentiation indicates that supply chain regionalization is not a single deglobalization, but a reconstruction and stratification of globalization. Table 1 summarizes the comparison of supply chain transformation strategies in the three major regions.

Table 1. Comparison of supply chain transformation in three major regions.

Dimension	Asia Pacific	Europe	North America
Core driver	China-US technological competition and strategic rivalry	Energy security crisis and weaponization of interdependence	Industrial reshoring demands and institutional regionalization
Dominant actors	United States (policy pressure) + Multinational corporations (strategic adjustment)	European Union (collective policy response) + Member states	US Government (industrial policy) + USMCA institutions
Transformation pathway	“China Plus One” diversification	Energy source diversification + Green transition	Nearshoring + Regional institutional integration

Dimension	Asia Pacific	Europe	North America
Regionalization pattern	Stratification (multi-hub coexistence)	Open regionalization oriented toward strategic autonomy	Institutionalized Fortress North America
Critical challenge	Bottleneck in alternative production capacity	Declining cost competitiveness	Insufficient supply chain completeness

5 Conclusion

This study examines the geopolitical drivers of the shift from globalization toward regionalization in supply chains. Based on theoretical integration and comparative case analysis, four principal conclusions emerge. First, supply chain regionalization results from the interaction of geopolitical risk, industrial policy intervention, and firm-level risk management, rather than from market efficiency considerations alone. Global Value Chain Theory is insufficient to account for current trajectories without incorporating perspectives from geopolitical economy that emphasize how power, security, and institutional factors reconfigure the geography of production networks. Second, geopolitical forces operate through three nested mechanisms. Industrial policy alters the institutional environment through sanctions, subsidies, and rule revisions. Risk management transforms firm decision logics through revised cognitive frameworks and scenario-based planning. Friend-shoring privileges political trust over pure cost calculus as a criterion for location choice. Third, regionalization follows differentiated pathways. The Asia Pacific region exhibits a layered “China Plus One” pattern driven by strategic competition and cost pressures. Europe responds to an energy security shock with crisis driven moves toward strategic autonomy and a green industrial transition. North America pursues institutionally anchored agglomeration under the USMCA. These patterns indicate that regionalization is not equivalent to autarky but represents a hybrid of stronger regional integration combined with retained global linkages in less strategic areas. Fourth, regionalization exhibits path dependence and self-reinforcing dynamics. Once regional ecosystems comprising supplier networks, infrastructure, and institutional support are established, reversal costs rise substantially. The emergent parallel regional systems in Asia Pacific, Europe, and North America may therefore become further consolidated over the coming decade.

Policy and managerial implications follow. Firms should seek a dynamic balance between efficiency and resilience by adopting layered supply chain strategies: concentrating regional diversified capacities in strategic sectors while preserving global footprints for non-strategic activities. Firms should build capabilities for geopolitical risk assessment and scenario based contingency planning, engage proactively in standards and policy formation, and design modular, reconfigurable supply chain architectures to enable rapid switching under stress.

This study has limitations that point to future research. First, the analysis emphasizes macro-level mechanisms and offers limited empirical examination of firm level decision processes. Future work could collect primary data through interviews and surveys to illuminate micro-level responses. Second, the case analysis focuses primarily on

manufacturing; further research should examine service and digital supply chains, including cloud services and financial infrastructures. Third, the study assesses patterns at a mid-stage of transformation; longitudinal research is required to evaluate long-term outcomes. Suggested directions include investigating how emerging technologies such as artificial intelligence and quantum computing may alter the technological basis of regionalization, assessing the strategic roles of Global South countries in reconfigured supply chains, and evaluating the effects of regionalization on global growth, distributional outcomes, and sustainability to inform policy design.

References

1. Alkharafi, N., Alsabah, M.: Globalization: An Overview of Its Main Characteristics and Types, and an Exploration of Its Impacts on Individuals, Firms, and Nations. *Economies* **13**(4), 9 (2025).
2. Edo, G. I. et al.: Petroleum Discovery, Utilization and Processing in the World and Nigeria: A Comprehensive Literature Review. *Sustainable Chemical Engineering* **5**(1), 191-215 (2024).
3. Hauser, S., Gutiérrez, I., Winkler, C.: Global Value Chains: The Road to Resilience. In: Claussen K, Elsig M, Polanco R, eds. *The Concept Design of a Twenty-First Century Preferential Trade Agreement: Trends and Future Innovations*. Cambridge University Press, United Kingdom, 227-257 (2025).
4. *The Strategy Institute*: Value Chain Analysis Explained: Boost Efficiency, Cut Costs, and Gain Competitive Advantage. <https://www.thestrategyinstitute.org/insights/value-chain-analysis-explained-boost-efficiency-cut-costs-and-gain-competitive-advantage> (2025).
5. Gereffi, G., Humphrey, J., Kaplinsky, R., Sturgeon, T.: Introduction: Globalisation, Value Chains and Development. *IDS Bulletin* **32**(3), 1-8 (2001).
6. Li, Y., Xia, X., Wang, C., Huang, Q.: Manufacturing Supply Chain Resilience Amid Global Value Chain Reconfiguration: An Enhanced Bibliometric–Systematic Literature Review. *Systems* **13**(10), 873 (2025).
7. Drezner, D. W., Farrell, H., Newman, A. L. *The Uses and Abuses of Weaponized Interdependence*. Brookings Institution Press, Washington, DC, USA (2021).
8. Kurilla, M.: What Is the CHIPS Act? *Council on Foreign Relations*. <https://www.cfr.org/articles/what-chips-act> (2024).
9. Fagan, M. L.: Chapter 15: Friend shoring and near shoring. *Supply Chain Management: A Public Sector Perspective*, Edward Elgar Publishing, United Kingdom, 249-267 (2024).
10. Strange, S.: *States and Markets*. Pinter Publishers Limited, London (1988).
11. Askin, F.: Chilling Effect. *Free Speech Center*. <https://firstamendment.mtsu.edu/article/chilling-effect/> (2025).
12. *Congressional Research Service*: USMCA: Automotive Rules of Origin. <https://www.congress.gov/bill/117th-congress/house-bill/4346> (2024).
13. *Semiconductor Industry Association*: 2025 State of the U.S. Semiconductor Industry. <https://www.semiconductors.org/wp-content/uploads/2025/07/SIA-State-of-the-Industry-Report-2025.pdf> (2025).
14. Astrov, V., Hanzl-Weiss, D.: The European gas market: Emancipating from Russia. *The Vienna Institute for International Economic Studies*. <https://www.wiiw.ac.at/the-european-gas-market-emancipating-from-russia-dlp-7261.pdf> (2025).

15. *BASF Report 2024: Material Investments and Portfolio Measures*. <https://report.basf.com/2024/en/combined-managements-report/fundamentals-of-the-group/strategy/material-investments-and-portfolio-measures.html> (2025).
16. Leonelli, G. C.: Critical Raw Materials, the Net-Zero Transition and the ‘Securitization’ of the Trade and Climate Change Mitigation Nexus: Pinpointing Environmental Risks and Charting a New Path for Transnational Decarbonization. *World Trade Review* **24**(2), 237–256 (2025).
17. Kikuchi, S.: Mexico Becomes the Largest Import Partner of the US: US Countering China's Influence Through This “Back Door”. *Mitsui & Co. Global Strategic Studies Institute Monthly Report*. https://www.mitsui.com/mgssi/en/report/detail/_icsFiles/afield-file/2024/12/16/2409_k_kikuchi_e.pdf (2024).

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

