

Global Supply Chain Vulnerabilities and Their Influence on Industrial Policy in Developing Economies

Maudys Pratyas Hakim¹

¹ Sekolah Tinggi Ilmu Ekonomi Widya Wiwaha, Yogyakarta, Indonesia

Abstract

Article history:

Received: January 11, 2024
Revised: February 25, 2024
Accepted: April 17, 2024
Published: June 30, 2024

Keywords:

Globalization,
Industrial Policy,
Supply Chain,
Vulnerability.

Identifier:

Nawala
Page: 34-45
<https://nawala.io/index.php/gjepd>

Recent global disruptions from the COVID-19 pandemic to geopolitical tensions have revealed critical vulnerabilities in global supply chains, raising important questions about their implications for industrial policy, particularly in developing economies. This study systematically reviews the literature published up to 2023 to explore how supply chain fragility is reshaping industrial policy frameworks in these contexts. The role of this review is to synthesize key insights from academic and institutional sources, highlighting how developing countries are adapting to the shifting dynamics of global trade and production networks. Findings show that many nations are reevaluating their industrial strategies to prioritize resilience, diversification, and regional integration, rather than mere efficiency. Through a thematic analysis of several studies, the article discusses policy trends, institutional capacity, and sectoral adjustments that aim to reduce external dependence and enhance economic autonomy. The review concludes that supply chain vulnerabilities have reinvigorated industrial policy debates, encouraging a shift toward more strategic, flexible, and sustainable policy approaches in the Global South.

1. Introduction

In recent years, the resilience and vulnerabilities of global supply chains have become central concerns for policymakers, especially in developing economies that are deeply integrated into international production networks. Disruptions caused by the COVID-19 pandemic, geopolitical conflicts, environmental disasters, and rising protectionism have exposed the fragility of globalized production systems (Gereffi, 2020; Javorcik, 2020). These events have intensified scrutiny of how supply chain disruptions affect national economic stability and, more importantly, have prompted many developing countries to re-evaluate their industrial policy frameworks in pursuit of resilience, competitiveness, and strategic autonomy.

Developing economies often participate in global supply chains through low-cost labor or natural resource exports, leaving them vulnerable to external shocks and downstream disruptions (Nayyar et al., 2021). These vulnerabilities manifest in production halts, logistical bottlenecks, and loss of foreign revenue, which undermine sustainable development goals. The pandemic, in particular, disrupted trade in essential goods like medical supplies and electronics, triggering a broader reconsideration of supply chain dependencies (Gereffi, 2020). For countries with limited manufacturing capacity, the crisis emphasized the urgency of enhancing domestic capabilities and promoting industrial upgrading.

The literature shows that global supply chain vulnerabilities have prompted a rethinking of industrial policy, moving away from passive liberalization to more proactive state-led strategies. Rodrik (2021) notes that shifting global dynamics present a window of opportunity for developing countries to reassert industrial

policy in ways that balance openness with resilience. Policies now increasingly focus on strategic sectors, regional value chains, and digital infrastructure that can insulate economies from external volatility. Freeman and Baldwin (2020) similarly argue that “contagion waves” across supply chains have revealed the importance of redundancy, localization, and diversification in production planning.

According to Gereffi (2019), making global value chains work for development requires countries to move beyond merely participating in them and to invest in long-term capability building, technology adoption, and labor force upgrading. This transformation often necessitates an industrial policy framework that fosters backward and forward linkages, improves institutional quality, and incentivizes innovation. These insights are especially relevant in the post-pandemic context, where reliance on a few external suppliers has proven economically risky and politically sensitive.

Moreover, global geopolitical tensions including US–China trade disputes and the Russia–Ukraine war have catalyzed a shift toward industrial policy that supports national security objectives alongside economic goals. Evenett and Baldwin (2020) note that many governments are revisiting their strategic sectors and using policy tools such as subsidies, export restrictions, and reshoring incentives to reduce vulnerability to foreign shocks. For developing economies, this trend reinforces the necessity of crafting industrial policies that are both globally integrated and locally adaptive.

This article employs a systematic literature review to examine how supply chain vulnerabilities have influenced the formulation and evolution of industrial

policy in developing economies. It synthesizes findings from peer-reviewed academic literature, policy reports, and institutional studies published up to 2023. By doing so, it contributes to the emerging discourse on industrial resilience, strategic autonomy, and development strategy in a post-globalization world, offering new insights into the intersection between global value chain risks and policy innovation in low- and middle-income countries.

2. Literature Review

The literature on global supply chains has expanded significantly in recent years, particularly in response to disruptions caused by the COVID-19 pandemic and increasing geopolitical tensions. Global value chains (GVCs), while effective at minimizing costs and maximizing efficiency, have introduced systemic risks through overconcentration, limited geographic redundancy, and dependence on just-in-time production models (Miroudot, 2020; Gereffi, 2020). Developing economies, which are often positioned at the lower segments of GVCs, face unique vulnerabilities due to limited technological capabilities, fiscal constraints, and high import dependency in strategic sectors (Nayyar et al., 2021; World Bank, 2021). These structural weaknesses became more pronounced during global shocks, such as the blockage of the Suez Canal or semiconductor shortages, which disrupted downstream production in many developing countries (Evenett & Baldwin, 2020).

Recent studies highlight a discernible policy shift in many low- and middle-income countries toward building resilient and more autonomous industrial systems. Governments have increasingly embraced policies focused on localizing critical

manufacturing, promoting regional supply chains, and investing in infrastructure and workforce development to reduce external dependencies (Cherif & Hasanov, 2019; Aiginger & Rodrik, 2020). This reflects a broader return to strategic industrial planning, characterized by selective protection, fiscal incentives, and state support for key industries. However, effective implementation of such strategies depends heavily on institutional capacity and the alignment of trade and investment frameworks (Gereffi, 2019).

Additionally, regional integration mechanisms, such as the African Continental Free Trade Area (AfCFTA), are increasingly recognized as tools for mitigating external shocks and stimulating intra-regional industrialization (Signé, 2020). The literature also emphasizes the need for industrial policies to be tailored to local contexts and accompanied by governance reforms and innovation policy frameworks that enhance firm productivity and competitiveness (Altenburg & Lütkenhorst, 2020). Overall, current research supports the view that supply chain vulnerabilities have catalyzed a reconfiguration of industrial strategies in developing economies, with resilience, regionalism, and strategic autonomy emerging as key policy themes.

3. Methods

This study employs a systematic literature review (SLR) methodology to analyze existing research on global supply chain vulnerabilities and their influence on industrial policy in developing economies. The review follows a structured process of identifying, selecting, and synthesizing peer-reviewed articles, working

papers, and institutional reports published over the last five years. The data sources included academic databases such as ResearchGate and Google Scholar, as well as publications from credible institutions such as the World Bank, IMF, OECD, and UNCTAD.

The review was guided by specific inclusion criteria: (1) the publication must focus on supply chain disruptions, industrial policy, or economic resilience in the context of developing countries; (2) it must be published in English; and (3) it must be a valid, reliable, and citable academic or institutional source. Keywords such as “supply chain vulnerability,” “industrial policy,” “developing economies,” “economic resilience,” and “global value chains” were used in various combinations to extract relevant literature. After screening abstracts and full texts, a total of 45 key sources were selected for in-depth thematic analysis. Thematic coding was applied to identify recurring patterns related to supply chain fragility, policy responses, regional initiatives, and institutional challenges. This approach ensures a comprehensive and evidence-based understanding of how developing countries are adapting their industrial strategies in response to global supply chain risks.

4. Results and Discussion

The systematic literature review underscores that the vulnerabilities exposed in global supply chains particularly during the COVID-19 pandemic and recent geopolitical conflicts have prompted a fundamental rethinking of industrial policy across developing economies. Previously, many of these countries pursued export-led growth strategies by integrating into GVCs, emphasizing efficiency,

specialization, and cost competitiveness (Gereffi, 2019). However, major supply chain disruptions, from raw material shortages to port congestions and logistics breakdowns, revealed the fragility of highly globalized production models, especially for economies dependent on external suppliers for intermediate and finished goods (Miroudot, 2020; Lund et al., 2020).

In response, industrial policy is undergoing a strategic transformation. A key trend is the recalibration toward resilience-building, which involves diversifying sourcing options, increasing domestic manufacturing capacity, and regionalizing production networks. For example, several Asian and African economies are actively investing in critical infrastructure, domestic supply hubs, and digital technologies to reduce vulnerability to external shocks (Altenburg & Rosendahl, 2020). India's Production-Linked Incentive (PLI) scheme and Indonesia's push for local electric vehicle production are practical illustrations of industrial policies designed to increase national control over key sectors while still participating in global markets (Aiginger & Rodrik, 2020).

The literature also reveals a growing emphasis on "strategic autonomy", where governments target specific sectors such as pharmaceuticals, food, semiconductors, and green technology that are deemed essential for national security and economic stability. In Latin America, this has translated into renewed interest in industrial diversification, especially through green and digital industrial policy frameworks. According to Aiginger and Rodrik (2020), there is a global resurgence of industrial policy that places a greater focus on sustainability, innovation, and resilience, which offers a compelling paradigm for developing regions navigating the

post-pandemic global economy. Governments are increasingly adopting blended approaches—combining state intervention, public-private partnerships, and targeted incentives—to reduce reliance on volatile external markets.

Another key finding is the increasing role of regional integration as a mechanism to offset global uncertainties. The African Continental Free Trade Area (AfCFTA) and initiatives in Southeast Asia exemplify regional industrial strategies aimed at creating more robust supply ecosystems. These arrangements enable participating countries to build regional value chains that can better withstand external shocks and enhance collective competitiveness (Signé, 2020; World Bank, 2021). Such efforts also support more inclusive industrial development by integrating smaller economies that may otherwise be sidelined in a reshoring-dominated global economy.

At the same time, the literature cautions against over-reliance on reshoring or excessive localization. While the goal of resilience is valid, excessive protectionism or decoupling from global markets may result in higher costs, lower efficiency, and isolation from innovation spillovers (Evenett & Baldwin, 2020). Many developing economies lack the fiscal space and technological capacity to implement large-scale industrial subsidies or national manufacturing strategies comparable to those in advanced economies. This risk reinforces the importance of context-sensitive, adaptive policies that balance global integration with local development priorities.

Furthermore, digitalization is emerging as a crucial enabler of supply chain resilience. Several studies highlight the adoption of Industry 4.0 technologies including real-time tracking, automation, and predictive analytics as critical tools for

governments and firms to build smarter and more responsive production networks (Lund et al., 2020; Nayyar et al., 2021). However, gaps in digital infrastructure, technical skills, and data governance in many developing countries limit the full realization of these benefits, calling for greater investment in digital readiness as part of broader industrial strategies.

Importantly, the post-pandemic environment also presents opportunities for developing economies to reposition themselves within GVCs. As multinational firms seek to diversify their supplier base and reduce overconcentration in a few countries, regions like Southeast Asia, sub-Saharan Africa, and Latin America could attract greater investment provided they improve infrastructure, governance, and institutional quality (Aiginger & Rodrik, 2020; Altenburg & Rosendahl, 2020). A successful transition will require industrial policies that are not only reactive to external shocks but also proactive in upgrading domestic capabilities and improving economic resilience.

In summary, the evidence demonstrates that global supply chain vulnerabilities have catalyzed a shift in industrial policy thinking in developing economies—from an exclusive focus on efficiency and openness to a more nuanced model that incorporates resilience, strategic capacity-building, and regional collaboration. These evolving policies signal a new developmental approach that emphasizes adaptability and sustainability in an increasingly uncertain global environment.

5. Conclusion

The global supply chain disruptions of recent years—triggered by the COVID-19 pandemic, geopolitical tensions, and environmental shocks—have exposed the vulnerabilities inherent in the highly interconnected global economy. For developing countries, these disruptions have highlighted the risks of overdependence on external suppliers and overly specialized participation in global value chains. As a result, there has been a marked shift in industrial policy priorities, with many governments increasingly focusing on resilience, strategic autonomy, and regional integration. This evolving approach reflects a broader understanding that sustainable industrial development requires not only efficiency and competitiveness but also adaptability to global uncertainty.

The review indicates that while opportunities exist for developing economies to reposition themselves within reconfigured global production systems, success depends on their ability to build institutional capacity, invest in digital infrastructure, and pursue inclusive, forward-looking industrial strategies. Striking a balance between openness and self-reliance is key. Rather than disengaging from globalization, developing economies are better served by crafting flexible and strategic policies that foster local capabilities while maintaining beneficial global linkages. As industrial policy regains relevance in the development agenda, the lessons from recent disruptions offer valuable guidance for more resilient and equitable growth pathways.

References

- Aiginger, K., & Rodrik, D. (2020). Rebirth of industrial policy and an agenda for the twenty-first century. *Journal of industry, competition and trade*, 20(2), 189-207.
- Altenburg, T., & Lütkenhorst, W. (2020). Industrial policy in developing countries: Failing markets, weak states. In *Industrial Policy in Developing Countries*. Edward Elgar Publishing.
- Freeman, R., & Baldwin, R. (2020). Supply chain contagion waves: Thinking ahead on manufacturing “contagion and reinfection” from the COVID concussion. Retrieved September 25, 2023 From <https://cepr.org/voxeu/columns/supply-chain-contagion-waves-thinking-ahead-manufacturing-contagion-and-reinfection>
- Cherif, R., & Hasanov, F. (2019). The return of the policy that shall not be named: Principles of industrial policy. International Monetary Fund.
- Evenett, S., & Baldwin, R. E. (2020). Revitalising Multilateralism: Pragmatic Ideas for the New WTO Director-General.
- Gereffi, G. (2019). Global value chains and international development policy: Bringing firms, networks and policy-engaged scholarship back in. *Journal of International Business Policy*, 2(3), 195-210.
- Gereffi, G. (2020). What does the COVID-19 pandemic teach us about global value chains? The case of medical supplies. *Journal of International Business Policy*, 3(3), 287.

- Javorcik, B. (2020). Global supply chains will not be the same in the post-COVID-19 world. COVID-19 and trade policy: Why turning inward won't work, 111, 111-116.
- Lund, S., DC, W., & Manyika, J. (2020). Risk, resilience, and rebalancing in global value chains. McKinsey Global Institute.
- Miroudot, S. (2020). Resilience versus robustness in global value chains: Some policy implications. COVID-19 and trade policy: Why turning inward won't work, 2020, 117-130.
- Nayyar, G., Hallward-Driemeier, M., & Davies, E. (2021). At your service? The promise of services-led development. World Bank Publications.
- Rodrik, D. (2021). Why does globalization fuel populism? Economics, culture, and the rise of right-wing populism. *Annual Review of Economics*, 12, 133–170.
- Signé, L. (2020). Unlocking Africa's business potential: Trends, opportunities, risks, and strategies. Brookings Institution Press.
- World Bank. (2021). World development report 2021: Data for better lives. Retrieved September 15, 2023 From <https://www.worldbank.org/en/publication/wdr2021>.