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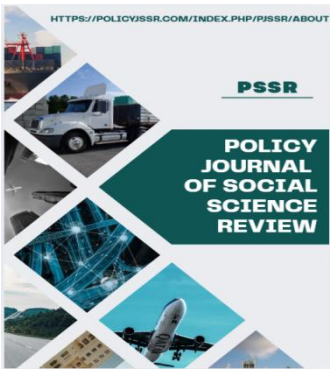

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STRATEGIC ADAPTATIONS TO THE US–CHINA TRADE WAR: SEMICONDUCTOR DYNAMICS, TECHNOLOGICAL BALKANISATION, AND POLICY RECOMMENDATIONS FOR DEVELOPING ECONOMIES (WITH A FOCUS ON UZBEKISTAN)

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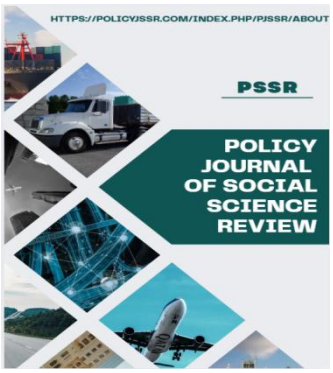
ABSTRACT

In this article, the authors will look at strategic counter-arguments to the US-China trade war, specifically the semiconductor industry, as the epicenter of technological competition, and the phenomenon of "technological balkanisation" the gradual separation of the global technology into two parallel and somewhat incompatible ecosystems, with the United States and China at their respective poles. The article examines the structural significance of semiconductors for economy and national security, identifies the key players, (US export control measures, Chinese state-led self-sufficiency campaign, and the global gatekeepers NVIDIA, TSMC, and ASML), and reviews the "strategic pause" under the Busan Accord (2025-2026), which postponed the semiconductor tariffs until 2027. It highlights a paradoxical interdependence between a shortage of advanced nodes chips in China and its expected dominance of mature nodes chips by early 2026, increasing supply chain fragility. The article then explores the economic losses and innovation inefficiencies of technological balkanisation, such as lost R&D duplication, lost economies of scale, and higher compliance costs. Lastly, it puts these global trends into actionable policy advice for developing



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diversifying trading and investment partners, strengthening capacities in the intermediate technology supply chains of the global economy (assembly, testing, packaging, materials processing); improving capacities in institutions, regulations and infrastructure connectivity; and creating a comprehensive National Strategy for economic resilience. The author concludes that the US-China trade war has significant potential to disrupt the world, but it also helps those countries that are more agile to reorient themselves in the new configurations of global value chains.

Keywords: Semiconductors; technological balkanisation; strategic pause; mature- node chips; parallel ecosystems; Uzbekistan; economic resilience; global value chains.

1. Introduction

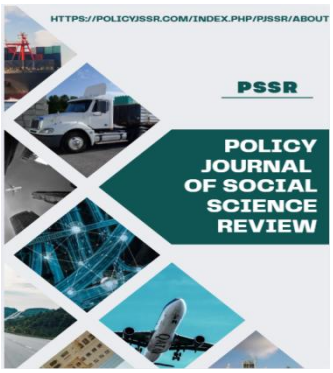
The US–China trade war has escalated from a tariff battle to a wider geoeconomic and technological battle. As outlined in the two articles in this series, the war has hampered global growth, reshaped value chains and made semiconductors and rare earths a weapon for war. This is the third article in a series where the focus is in strategic response rather than diagnosis. It asks the following: What does it take to adjust to the new and divided global economic environment in developing economies and in Uzbekistan, in particular? The article attempts to answer three key questions: (1) why semiconductors have become the main arena of the conflict and what is the nature of the "strategic pause" under the Busan Accord? (2) What is the meaning of "technological balkanisation" and what is the economic and innovation impact of this? (3) How can developing economies, particularly Uzbekistan, become more resilient and capitalise on opportunities created by global value chain reconfiguration?

The article answers these questions to offer a way forward for policymakers in emerging economies in a world of geopolitical competition, technological decoupling, and industrial upgrading.

2. The Semiconductor Industry: Epicentre of the Technological Cold War

2.1 Structural Importance of Semiconductors

From smartphones and data centres to AI systems, automotive electronics, and defence technologies, semiconductors lie at the heart of the digital economy, serving as the backbone for numerous applications and industries (Park, 2023; Yoon, 2023). They have become a national security asset from a commercial product due to their strategic significance. The design, manufacture, and supply of semiconductors have a direct impact on



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technological control, economic competitiveness, and military strength (Malkin & He, 2024).

The value chain of semiconductors is very fragmented, with design being dominated by the United States (US) with companies such as NVIDIA, Intel, and AMD, advanced manufacturing equipment by a few companies, such as the Netherlands' ASML, and US-based Applied Materials, fabrication by East Asian foundries, such as Taiwan's TSMC and Korea's Samsung, and assembly and testing in lower cost areas, such as Sharma (2023). The whole chain is not in the hands of one nation, which means that there is interdependence and vulnerability.

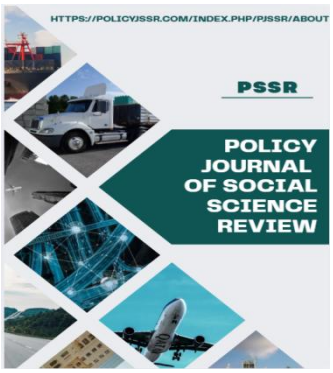
2.2 Key Actors and Their Roles

- **United States:** The United States imposes export restrictions, and follows the "small yard, high fence" approach, to limit China's ability to access advanced AI chips, semiconductor manufacturing equipment and EDA software. The CHIPS and Science Act (2022) and subsequent export bans target NVIDIA's high-end GPUs, among others (Peters, 2023; Zhang & Zhu, 2023). The aim is to keep ahead of the curve in AI technology for the U.S. and to slow China's military progress.
- **China:** State-led approach to achieve semiconductors self-sufficiency, total investments in excess of $150 billion through national investments, industrial parks, and subsidies. The focus is on chip design, domestic fabrication (SMIC), materials and talent cultivation (Bendtsen, 2025; Ernst, 2022). Meanwhile, however, there are still structural constraints in advanced lithography (EUV) and high-end software ecosystems (Durán Morenilla, 2024).
- **Global Gatekeepers:** US export restrictions and the need for AI chips overseas. TSMC, the world's biggest foundry, will have to balance the pressure of the US to restrict sales of its more advanced nodes to China and satisfy its worldwide customers. ASML has been designated as the only firm able to sell EUV machines, and it faces tight coordinated export restrictions, preventing it from being sold to China (Daniel & Golemo, 2024; Huang, 2026).

The above companies are examples of the private sector becoming a systemic gatekeeper and the strategies being driven by geopolitical constraints as well as market forces (Klementina & Benjamin, 2024; Yeung et al., 2023).

2.3 The Strategic Pause: Busan Accord and the 2027 Tariff Deadline

The Busan Accord (October 2025) temporarily deescalated semiconductor related tariffs which are then postponed until 2027. This "strategic pause" was motivated by three key considerations: (1) the extensive interdependence of semiconductor value chains in East Asia, North America, and Europe, which would



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create significant impacts on many industries should they simply unplug; (2) the inflationary pressures in the US, making additional tariffs politically unfeasible; (3) strategic awareness that sudden decoupling would likely increase technology fragmentation, leading to parallel value chains instead of negotiated competition (Grimes & Du, 2022; Park, 2023; Yeung, 2022).

The pause is a temporary respite for the auto and consumer electronics industries over structural tensions. Given that companies have a short uncertainty window they must plan for possible tariff implementation in 2027, while continuing to operate (Cline, 2025).

2.4 Structural Contradiction: Advanced Node Exclusion vs. Mature Node Expansion

The most important paradox of the semiconductor war is that China is unable to compete in the sub 7nm nodes, but is on the verge of winning the mature node chip market (≥28nm) battle. China is expected to drive 70% of the global mature node chips market sales by the early 2026 (Malik, 2025; Sharma, 2023). To fit the requirements of an automotive system, industrial machines, power management, and consumer electronics, such as mature nodes are necessary. This puts advanced economies in a dilemma: on one hand they are aiming to decrease their reliance on China for strategic technologies, while on the other hand they are dependent on China's mature node chips for a wide range of non-defence applications (Li et al., 2025; Yue et al., 2024).

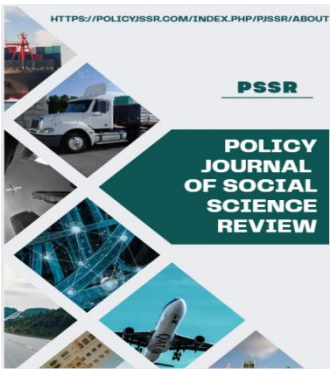
This paradox is called the "structural interdependence paradox" by Smorodinskaya et al. (2021); denying advanced nodes gives China more control over mature nodes, thus making global supply chains more fragile and complex, not less).

3. The Balkanisation of Global Technology

3.1 Emergence of Parallel Technological Ecosystems

Today, as the rivalry between the US and China continues to grow, the international technology sphere is moving towards "balkanisation", the process of developing two partially incompatible ecosystems US and its allies (EU, Japan, Korea, Taiwan) and China (Danilin, 2020; Milutinović & Nikolić, 2023). In the US system, the focus is on Advanced AI models, Cloud infrastructure, EDA software, and Chip design. In China, it is developing its own alternatives: domestic chip designs such as Loongson, Hygon; operating systems such as HarmonyOS; AI frameworks such as MindSpore, cloud services such as those provided by Alibaba and Tencent (Cai, 2026; Gajewski, 2023; Nawaz & Iqbal, 2025).

They are not barrenly isolated from each other there are still trade and interaction but they are moving toward different



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standards, supply chains and regulatory structures (Nawaz & Ven, 2026). Interoperability is decreasing.

3.2 Implications for Global Innovation

There are high costs to fragmentation in the context of innovation:

Reduced efficiency due to duplication of R&D: Rather than being able to share resources across the globe, competing blocs spend money on similar technologies, leading to a lower overall efficiency (Burgers, 2022).

The pace of innovation diffusion is slower; innovation developed in one ecosystem might not be readily moved to the other ecosystem, and the world's progress is hampered (Tokat, 2022).

Reduced economies of scale: As the products are produced in parallel production lines, the firms, particularly the small firms, incur higher costs due to the compliance with different standards (Ameh, 2024; Liu et al., 2025).

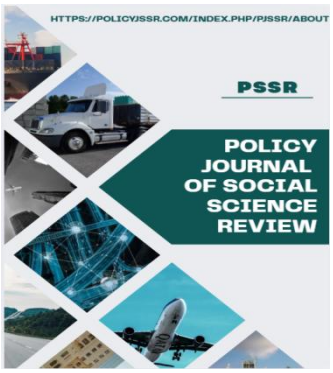
Meanwhile, the rivalry between ecosystems could result in more specific progress in strategic sectors (AI, quantum computing, advanced materials), although such progress is likely to be limited to each bloc and not be globalised (Minas, 2025).

3.3 Economic and Security Costs

Technological balkanisation increases the compliance burden, uncertainty and the risk of systemic instability. In smaller economies, advanced technologies are more difficult to access and adopt, as they often fall into one of two categories: either they are incompatible with the current ecosystem, or they require the economy to build two different systems: one for use alongside the existing ecosystem and another for dual systems (Vertinsky et al., 2023). Furthermore, geopolitical conflicts can also impact digital infrastructure, data governance and cyber security (Magnani, 2024; Qi & Zhang, 2024). It leaves a world of more disintergrated and less stable technology hierarchies, far removed from the liberal and integrated global world of early globalisation (Buckley & Hashai, 2020).

4. Policy Recommendations for Developing Economies: The Case of Uzbekistan

The US-China trade war and technological fragmentation present both challenges and opportunities for Uzbekistan, as with many developing countries. The nation is actively working on economic reform measures which include liberalization of trade, foreign investment and modernisation of industry and strengthening regional integration (Munavvar, 2025). The recommendations, based on the analysis of the global trends, have been made taking into account the specific situation in Uzbekistan.



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4.1 Diversify Trade and Investment Partners

An over-dependence on one major source of power or trade makes one more vulnerable. It is important to actively diversify Uzbekistan's export markets and sources of foreign investment. This encompasses enhanced relationship with Russia, China, EU, Turkey, South Korea and other Central Asian neighbours. A multi vector approach will minimise the risk of policy changes in a single country, and will provide bargaining power (Park, 2020; Tam, 2020). The government should seek ongoing negotiations of preferential trade deals, membership in regional platforms (such as Eurasian Economic Union, Shanghai Cooperation Organisation, Belt and Road Initiative) and open-door policy with western partners.

4.2 Build Capacity in Intermediate Stages of Global Technology Supply Chains

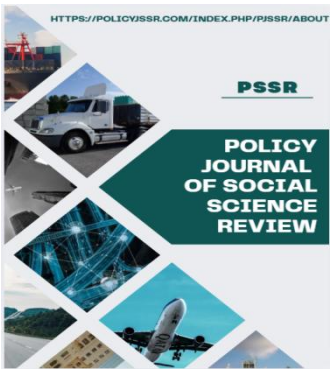
Most developing economies cannot be able to implement full scale semiconductor manufacturing. There are, however, points in between which provide practical opportunities: assembly, testing, packaging (ATP), materials processing, logistics. Kinds of these activities involve less capital and advanced technology and can also provide job opportunities and industrial upgrading (Umarova, 2024). Special economic zones in electronics assembly, metal processing of rare earth intermediates or software services for supply chain management might be developed in Uzbekistan. Another trend to consider is the global movement towards decongesting value chains from China, which presents opportunities for new value chain hubs to emerge (Kalyuzhnova & Holzhacker, 2021; Vinokurov et al., 2022).

4.3 Enhance Institutional Quality, Transparency, and Infrastructure

Multinational companies look for predictability, the rule of law and infrastructure when choosing other production locations. Uzbekistan needs to keep reforming regulations to enhance their transparency, safeguard investments, promote customs facilitation and logistics links (Cheong & Turakulov, 2022). Digital infrastructure (such as e government platforms, trade facilitation systems) and physical infrastructure (such as transport corridors, industrial parks) play a key role in becoming a reliable link in re regionalised value chains. In the present competitive world economy, reliability and predictability have become some of the most significant key competitive advantages (Nawaz, 2026; Sultonov, 2026).

4.4 Formulate a National Strategy for Economic Resilience

A comprehensive, cross ministerial strategy is needed to coordinate responses to external shocks and structural shifts. The NSEWIR (National Strategy for Economic Resilience in the context of fragmentation of international trade) should incorporate:



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- Diversification plans of the supply chain (Identification of Critical imports and their alternatives).
- Roadmaps for industrial upgrading (targeting intermediate level of the GVC).
- Human capital development (Logistics, quality control, Digital skills training).
- Capacity building programs (for the Central Asian region).
- Green/digital transition plans, in line with new GVC requirements.

The strategy should be flexible and regularly review geopolitical and trade policy shifts, and incorporate early warning systems for tariff and/or regulatory shocks (Naqvi & Hamid, 2024; Nilsson & Nolte, 2023).

5. Conclusion

In this article, the technological competition between the US and China has been examined, followed by an analysis of the phenomenon of technological balkanisation, and strategic adjustments necessary for the development of economies of emerging countries and Uzbekistan's technology in particular. Key findings include:

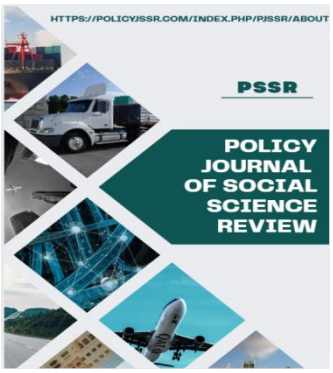
At the heart of the struggle: semiconductors, US employs export restrictions to hold onto technological edge, China has more than $150 billion in investment to become self-sufficient. The Busan Accord is a temporary strategic delay (tariff delay till 2027) without solving the structural contradiction.

Advanced node exclusion and mature node dominance: As China is excluded from leading edge chips, it is expected to dominate mature node chip sales by 2026, making the supply chain more fragile and complex.

Technology balkanisation: The world is moving towards two parallel technological ecosystems (US led and China led) with R&D overlapping, loss of economies of scale, increasing compliance costs and decreased level of innovation diffusion. Smaller economies have to make tough decisions and systemic risks are higher.

Policy recommendations for Uzbekistan: Diversify trade partners; strengthen the capacities of intermediate stages of GVCs (assembly, testing, packaging, materials processing); improve institutional quality, transparency and infrastructure; and implement a comprehensive National Strategy for Economic Resilience.

The US-China trade war is not a temporary imbalancing but a long-term rebalancing. In developing economies, flexibility, diversification and initiative in the way they engage in new configurations of the value chain will help to transform geopolitical competition into economic opportunities. Taking advantage of this new space requires that Uzbekistan demonstrate both a sense of urgency and strategic thinking such as adopting its own



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ISSN Online:3006-4635

ISSN Print: 3006-4627

national vision for reform and development, incorporating human rights principles into the legal framework, and establishing a new, more proactive approach to domestic policy.

References

Ameh, B. (2024). Technology-integrated sustainable supply chains: Balancing domestic policy goals, global stability, and economic growth. *Int J Sci Res Arch*, *13*(2), 1811-1828.

Bendtsen, J. T. (2025). The Global Semiconductor Industry: Potential Future Implications of US–China Policy Conflict. In *BUSINESS AND POLICY CHALLENGES OF GLOBAL UNCERTAINTY: European Perspectives* (pp. 253-273). World Scientific.

Buckley, P. J., & Hashai, N. (2020). Skepticism toward globalization, technological knowledge flows, and the emergence of a new global system. *Global Strategy Journal*, *10*(1), 94-122.

Burgers, T. (2022). Balkanization Instead of Eurasianism: Fragmented Technological Governance Across the OSCE Domain and Its Implications. In *Securitization and Democracy in Eurasia: Transformation and Development in the OSCE Region* (pp. 395-403). Springer.

Cai, C. (2026). Triadic Contest: The US, China, EU, and the Battle for the Soul of AI. *Chinese Journal of International Review*, *8*(01), 2650005.

Cheong, I., & Turakulov, V. (2022). How Central Asia to Escape from trade isolation?: Policy targeted scenarios by CGE modelling. *The World Economy*, *45*(8), 2622-2648.

Cline, W. R. (2025). 25-23. Trump's Global Tariff War: Faulty Premises, Costly Consequences.

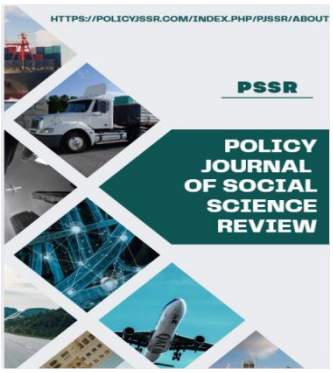
Daniel, M., & Golemo, K. (2024). Economic and Geopolitical Challenges in Graphics Processing Unit Manufacturing: The Case of the Taiwan Semiconductor Manufacturing Company Market Dominance. *Azja-Pacyfik*(XXX), 61-88.

Danilin, I. V. (2020). The US-China technological war. SPIN,

Durán Morenilla, M. (2024). Analysis of the US-China Semiconductor Conflict: How will the US-China Chip Race Affect Europe?

Ernst, J. P. (2022). *Chip-ing Away at Globalization: The Deglobalization of the Semiconductor Industry as* Central European University].

Gajewski, T. (2023). European Union at the dawn of technological cold war. *Toruńskie Studia Międzynarodowe*, *1*(18), 83-101.



Policy Journal of Social Science Review

ISSN Online:3006-4635

ISSN Print: 3006-4627

Grimes, S., & Du, D. (2022). China's emerging role in the global semiconductor value chain. *Telecommunications Policy*, *46*(2), 101959.

Huang, P.-S. S. (2026). AI-Driven Value Redistribution in Semiconductor Supply Chains: Evidence from ChatGpt's Impact on US and Taiwan Markets. *Available at SSRN 6241778*.

Kalyuzhnova, Y., & Holzhacker, H. (2021). *Enhancing connectivity and trade between Central Asia regional economic cooperation countries and the world: Benefits, risks and policy implication*.

Klementina, K., & Benjamin, B. (2024). The US-China Tech War and Its Implications for Transatlantic Relations. *Pazmany Peter Catholic University, Budapest, Hungary. DOI: https://doi. org/10.13140/RG*, *2*(15792.16645).

Li, L., Wang, H., Li, Z., & Hu, S. (2025). Analysis of the structure and robustness of the global semiconductor trade network. *PloS one*, *20*(1), e0313162.

Liu, H., Li, N., Zhao, S., Xue, P., Zhu, C., & He, Y. (2025). The impact of supply chain and digitization on the development of environmental technologies: Unveiling the role of inflation and consumption in G7 nations. *Energy Economics*, *142*, 108165.

Magnani, M. (2024). *The Great Disconnect: Hopes and fears after the excess of globalization*. EGEA spa.

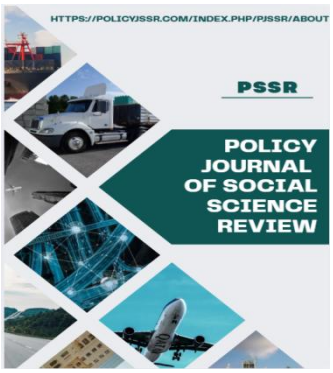
Malik, T. H. (2025). *Institutional sclerosis of Chinese semiconductor industry: temporal; structural, and evolutionary appraisal*. Sage Oakland, CA.

Malkin, A., & He, T. (2024). The geoeconomics of global semiconductor value chains: extraterritoriality and the US-China technology rivalry. *Review of International Political Economy*, *31*(2), 674-699.

Milutinović, P., & Nikolić, G. (2023). Can China challenge the technological supremacy of the United States: current standpoint and perspectives. *The Review of International Affairs*, *74*(1187), 87-106.

Minas, S. (2025). Conflicting Connectivities: Legal Considerations for Negotiating Geotechnological Rivalry. *Iustinianus Primus L. Rev.*, *16*, 147.

Munavvar, E. (2025). INVESTMENT ENVIRONMENT AND IMPACT ON FORIEGN TRADE DEVELOPMENT IN UZBEKISTAN. *Новости*



Policy Journal of Social Science Review

ISSN Online:3006-4635

ISSN Print: 3006-4627

образования: исследование в XXI веке, *4*(40), 868-879.

Naqvi, S. N. H., & Hamid, N. (2024). Global Trade Wars and Their Impact on Emerging Economies. *Innovations in Science, Technology, and Society*, *2*(2), 1-18.

Nawaz, I., & Pang, S. (2026). Transport and Logistics Infrastructure in Foreign Economic Activity: A Theoretical Framework and Conceptual Model. *J-STAR: Journal of Social & Technological Advanced Research*, *2*(2), 10-16.

Nawaz, I., & Iqbal, J. J. C. J. o. S. S. R. (2025). Smart Tourism Technology as a driver of Sustainable Religious Tourism and Visitor Loyalty: Evidence from Pakistan. *3*(2), 2807-2825.

Nawaz, I., & Ven, Y. J. P. J. o. S. S. R. (2026). Theoretical and Regulatory Foundations of Currency Operations Auditing under International Standards. *4*(4), 95-104.

Nilsson, L., & Nolte, S. (2023). The economic impact of the US-China trade dispute. *International Economics and Economic Policy*, *20*(4), 709-728.

Park, S. (2020). Trade conflict between the US and China: What are the impacts on the Chinese economy. *International Organisations Research Journal*, *15*(2), 153-168.

Park, S. (2023). Semiconductors at the intersection of geoeconomics, technonationalism, and global value chains. *Social Sciences*, *12*(8), 466.

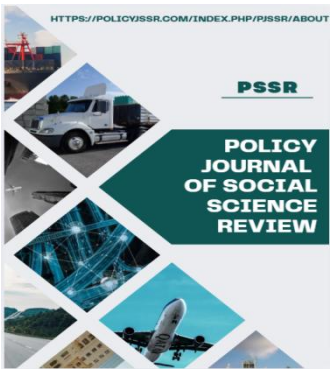
Peters, M. A. (2023). Semiconductors, geopolitics and technological rivalry: the US CHIPS & Science Act, 2022. In (Vol. 55, pp. 1642-1646): Taylor & Francis.

Qi, N., & Zhang, A. (2024). Technological cooperation relationships among supply chain enterprises under the perspective of technological blockade: A tripartite evolutionary game model. *Journal of Cleaner Production*, *447*, 141240.

Sharma, A. (2023). Assessing core-monopolization and the possibilities for the semi-periphery in the world-system today: A case study of the semiconductors industry. *Journal of World-Systems Research*, *29*(2), 480-504.

Smorodinskaya, N. V., Katukov, D. D., & Malygin, V. E. (2021). Global value chains in the age of uncertainty: advantages, vulnerabilities, and ways for enhancing resilience. *Baltic Region*, *13*(3), 78-107.

Sultonov, M. (2026). Trade-growth dynamics in Central Asia: a causal analysis of international trade and



Policy Journal of Social Science Review

ISSN Online:3006-4635

ISSN Print: 3006-4627

GDP interactions. *Journal of Contemporary East Asia Studies*, 1-24.

Tam, P. S. (2020). Global impacts of China–US trade tensions. *The Journal of International Trade & Economic Development*, *29*(5), 510-545.

Tokat, Y. (2022). The Big Tech versus the Nation-States: Clash of economic interests and struggle to compete on a global scale.

Umarova, S. (2024). TRADE DYNAMICS IN CENTRAL ASIA: INSIGHTS FROM UZBEKISTAN'S PERSPECTIVE. *Int. Affairs*, *7*(109), 110.

Vertinsky, I., Kuang, Y., Zhou, D., & Cui, V. (2023). The political economy and dynamics of bifurcated world governance and the decoupling of value chains: An alternative perspective. *Journal of International Business Studies*, 1.

Vinokurov, E., Ahunbaev, A., Babajanyan, V., Berdigulova, A., Fedorov, K., Kharitonchik, A.,...Usmanov, N. (2022). The economy of Central Asia: A fresh perspective.

Yeung, H. W.-c. (2022). Explaining geographic shifts of chip making toward East Asia and market dynamics in semiconductor global production networks. *Economic Geography*, *98*(3), 272-298.

Yeung, H. W.-c., Huang, S., & Xing, Y. (2023). From fabless to fabs everywhere? Semiconductor global value chains in transition.

Yoon, J. (2023). Supply chain security in the age of techno-geopolitics:'Fab 4'case in the semiconductor industry.

Yue, X., Mu, D., Wang, C., Ren, H., Peng, R., & Du, J. (2024). Critical risks in global supply networks: A static structure and dynamic propagation perspective. *Reliability engineering & system safety*, *242*, 109728.

Zhang, Y., & Zhu, X. (2023). Analysis of the global trade network of the chip industry chain: Does the US-China tech war matter? *Heliyon*, *9*(6).