

U.S.-China Trade War: Analysis Of The Semiconductor Industry

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Abstract

This research paper analyses the causes and outcomes of the U.S.-China trade conflict through the lens of the semiconductor industry. It explores strategic measures the U.S. took to curb China's technological progress. Furthermore, the paper looks at China's countermeasures to mitigate the repercussions of U.S. policies.

This research paper is a literature review of various research papers to unveil the causes and effects of the trade war, in the semiconductor industry. Some of the leading causes include intellectual property disputes (Huawei and ZTE) and trade relations, the outcomes of the trade war are more directed toward economic competition and global impact.

The paper proposes potential policies to mitigate the damages caused by the trade war and recommends policies to create a robust economic environment. The paper explores policies that could enhance diplomatic relations and minimize trade wars.

Methodology

The research methodology used in this paper is a Literature review. The five main papers reviewed are...

1. "What the Huawei Case Can Teach Us about the U.S.-China Power Game" by Lu Chuanying and Nicolas Huppenbauer.
2. "The U.S.-China Trade War: Is Malaysia benefiting from "Diversion" in US import demand?" by Calvin Cheng, Firdaos Rosli, and Dwintha Maya Kartika.
3. "Economic Security: Uncertainty Rises as U.S.-China Strategic Competition Deepens" by Yeon Wonho.
4. "U.S.-China Bilateral Economic Relations" by Amy P. Celico and Song Guoyou.
5. "The India-China-U.S. Triangle" by Vijay Gokhale.

These research papers are analyzed to highlight some of the chief factors in the semiconductor industry that led to the trade war, as well as investigate papers to comprehend the outcomes of the trade war on the semiconductor industry.

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I. Introduction

The ongoing U.S.-China trade war is one of the biggest economic conflicts of the 21st century, with the semiconductor industry at its core. Starting in 2018, this conflict has been fueled by issues like intellectual property disputes, national security concerns, and competition for technological dominance¹. The semiconductor industry, crucial for modern technology and economic security, has thus become a key area of this struggle.

The United States has attempted to limit China's technological growth by various measures such as restricting the export of semiconductor technology to Chinese companies, scrutinizing Chinese investments in U.S. tech firms², and encouraging allied nations to adopt similar policies³. The U.S. justifies these measures based on concerns over intellectual property, and national security- the potential use of advanced technologies to boost China's military capabilities.

¹ CHUANYING, LU, NICOLAS HUPPENBAUER, Matthew P. Goodman, Chen Dongxiao, Nigel Cory, Peter Raymond, William Reinsch, et al. "What the Huawei Case Can Teach Us about the U.S.-China Power Game." *Perspectives on the Global Economic Order in 2019: A U.S.-China Essay Collection*. Center for Strategic and International Studies (CSIS), 2019. <http://www.jstor.org/stable/resrep22588.14>.

² Celico, Amy P., Song Guoyou, Matthew P. Goodman, Amy Celico, Douglas J. Elliott, Fang Jin, Ziad Haider, et al. "U.S.-China Bilateral Economic Relations." Edited by Daniel Remler and Ye Yu. *Parallel Perspectives on the Global Economic Order: A U.S.-China Essay Collection*. Center for Strategic and International Studies (CSIS), 2017. <http://www.jstor.org/stable/resrep23187.11>.

³ Bloomberg.com. 2024. "US Urges Allies to Squeeze China Further on Chip Technology," March 6, 2024. <https://www.bloomberg.com/news/articles/2024-03-06/us-urges-allies-to-further-squeeze-china-on-chip-technology>.

In response, China has taken steps to neutralize these measures. These include investing heavily in its own semiconductor industry, reducing reliance on foreign technology through the "Made in China 2025" plan, and seeking new trade partnerships⁴. This economic competition has significant implications for the U.S. and China, global supply chains, and international trade.

This paper explores the causes and effects of the U.S.-China trade war on the semiconductor industry by reviewing existing research papers. By examining key works on the topic, the paper seeks to understand this trade conflict and propose alternative measures or policies that might create a more stable economic environment. Ultimately, it supports diplomatic engagement over conflict, highlighting the need for cooperative approaches to resolve underlying issues as they impact global trade, collaboration, and security.

Historical Background

The U.S.-China trade war, beginning in 2018, has significantly influenced global economics, particularly within the semiconductor industry. As a crucial sector for technological progress and economic stability, semiconductors have been central to the escalating tensions between these two global powers.

Early Developments (2018-2019)

The trade war's roots trace back to an investigation initiated by the U.S. Trade Representative (USTR) in August 2017 under Section 301 of the Trade Act of 1974⁵. This investigation examined China's trade practices, focusing on allegations of intellectual property theft, forced technology transfers, and other unfair trade practices. The resulting March 2018 report highlighted China's extensive use of industrial policies and practices that disadvantage U.S. companies (Colson et al. 2024).

These findings led President Trump to announce tariffs on approximately \$60 billion of Chinese imports in March 2018. The administration aimed to address what it perceived as a trade imbalance and protect American intellectual property from China's unfair practices.

The semiconductor industry, essential to a wide array of electronic products, was among the first sectors to feel the impact of these tariffs. Since semiconductors are embedded in many goods subject to the tariffs, U.S. companies that rely on Chinese semiconductors and Chinese firms dependent on U.S. technology were significantly affected.

Additionally, the U.S. imposed restrictions on the export of semiconductor technology to China, specifically targeting Chinese telecommunications giants Huawei and ZTE. The U.S. accused these companies of leveraging their technology for espionage, posing a national security threat. Consequently, Huawei and ZTE faced significant operational challenges, losing access to critical American technology, which crippled their global competitiveness.

Escalation and Countermeasures (2019-2020)

As the trade war intensified, the U.S. expanded its restrictions on semiconductor technology exports to China. In May 2019, the U.S. Department of Commerce added Huawei to its Entity List, which cut the company off from critical U.S. technology, including advanced semiconductors and software. Other Chinese tech firms were added to the Entity List, further isolating them from U.S. technology and pressuring the Chinese government to take retaliatory measures.

In response, China accelerated efforts to reduce its dependency on foreign semiconductors. The "Made in China 2025" initiative, launched in 2015, became more urgent as the trade war progressed. This strategy aimed to bolster China's domestic semiconductor production and reduce reliance on imports. Substantial investments were funneled into the semiconductor industry, with state-backed funds and private enterprises working to advance China's technological capabilities(citation needed).

The restrictions imposed by the U.S. severely disrupted Chinese companies that relied on American semiconductor technology. Huawei, for example, saw its global smartphone market share decline as it struggled to source components essential for its devices. Meanwhile, China's push for self-sufficiency led to a surge in

⁴ Policy Circle Bureau. 2024. "Chip Manufacturing: China Looks to out Manoeuvre US with \$47.5 Bn War Chest | Policy Circle." Policy Circle. May 29, 2024.

<https://www.policycircle.org/industry/china-fund-for-chip-manufacturing/#:~:text=Beijing%20is%20doubling%20down%20on.>

⁵ Colson, Shelby L., Timothy J. Keeler, Matthew J. McConkey, and Warren S. Payne. 2024. "US Trade Representative Finalizes 4-Year Review of Section 301 Tariffs on Imports from China, Increasing Tariffs on Clean Energy Supply Chains." Mayerbrown.com. May 17, 2024.

<https://www.mayerbrown.com/en/insights/publications/2024/05/ustr-finalizes-4year-review-of-section-301-tariffs-on-imports-from-china-increasing-tariffs-on-clean-energy-supply-chains.>

domestic semiconductor production, though the country still lagged significantly behind leading producers like the U.S., Taiwan, and South Korea.

This period also saw a growing sense of technological nationalism in China⁶, with the government and private sector increasingly prioritizing the development of homegrown technology. However, the road to self-sufficiency proved challenging, as China's semiconductor industry continued to face technological hurdles and shortages of skilled labor and intellectual property.

Global Impact and Supply Chain Disruptions (2020-2021)

The U.S.-China trade war sent shockwaves through the global semiconductor supply chain. As both countries imposed tariffs and restrictions, companies worldwide found themselves caught in the crossfire. Many firms reliant on Chinese manufacturing or U.S. technology faced increased costs and operational uncertainties.

The situation worsened with the onset of the COVID-19 pandemic. Lockdowns and factory shutdowns disrupted production across the globe, creating a supply-demand mismatch. The pandemic-induced surge in demand for electronic devices, driven by remote work and online education, further strained the already disrupted semiconductor supply chain⁷.

The combined impact of the trade war and the pandemic led to a severe global semiconductor shortage, affecting industries from automotive to consumer electronics. Car manufacturers, for example, were forced to halt production due to a lack of chips, costing the industry billions in lost revenue. According to some estimates, the semiconductor shortage may have resulted in a reduction of global automotive production by nearly 11 million vehicles in 2021⁸.

The supply chain disruptions also led to increased prices for semiconductors, exacerbating the financial strain on companies dependent on these components. As a result, consumers faced higher prices for electronic goods, and companies were forced to rethink their supply chain strategies, with many seeking to diversify their sources of semiconductors away from China⁹.

Recent Developments (2022-Present)

The U.S. has continued to escalate its efforts to restrict China's access to advanced semiconductor technologies. In 2022, the U.S. government intensified pressure on its allies to impose similar restrictions, successfully convincing countries like Japan and the Netherlands to limit their semiconductor technology exports to China. These efforts were aimed at curbing China's technological advancements and maintaining U.S. dominance in the semiconductor industry¹⁰.

Meanwhile, China has doubled down on its push for technological self-reliance. Recognizing the strategic importance of semiconductors, the Chinese government has significantly increased funding for research and development in the sector. Major state-backed initiatives have been launched to develop indigenous semiconductor technologies and reduce dependency on imports¹¹.

⁶ EVANS, Paul. 2020. "Techno-Nationalism in China-US Relations: Implications for Universities." *East Asian Policy* 12 (02): 80-92. <https://doi.org/10.1142/s1793930520000161>.

⁷ Rio-Chanona, R Maria del, Penny Mealy, Anton Pichler, François Lafond, and J Doyne Farmer. 2020. "Supply and Demand Shocks in the COVID-19 Pandemic: An Industry and Occupation Perspective." *Oxford Review of Economic Policy* 36 (Supplement_1): S94-137. <https://doi.org/10.1093/oxrep/graa033>.

⁸ Bender, Theresa. 2023. "Navigating Complexities: The Semiconductor Shortage's Effect on the Auto Industry." Applied Energy Systems, Inc. | the Experts in Gas Delivery Systems Excellence. November 30, 2023. <https://www.appliedenergysystems.com/semiconductor-shortages-effect-on-auto-industry/#:~:text=As%20a%20result%2C%20more%20than>.

⁹ Ackerman, Kathryn. 2024. "The Biggest Challenge Impacting the Semiconductor Industry Today: Supply Chain Disruptions." Sourceability.com. July 12, 2024. <https://sourceability.com/post/the-biggest-challenge-impacting-the-semiconductor-industry-today-supply-chain-disruptions>.

¹⁰ Baazil, Diederik, Cagan Koc, Mackenzie Hawkins, and Michael Nienaber. 2024. "US Urges Allies to Squeeze China Further on Chip Technology." *Bloomberg.com*, March 6, 2024. <https://www.bloomberg.com/news/articles/2024-03-06/us-urges-allies-to-further-squeeze-china-on-chip-technology>.

¹¹ Ong, Kenneth. 2024. "China's Defiant Chip Strategy." Foreign Policy Research Institute. Asia Program. June 28, 2024. <https://www.fpri.org/article/2024/06/chinas-defiant-chip-strategy/>.

Despite these efforts, China's semiconductor industry continues to lag behind global leaders. While domestic production has increased, the industry faces significant challenges, including a lack of advanced manufacturing capabilities and producing high-end chips essential for advanced technologies such as 5G, 6G networks, and artificial intelligence. China continues to remain heavily reliant on foreign companies for the most advanced semiconductor fabrication equipment, such as extreme ultraviolet (EUV) lithography machines, which are crucial for producing cutting-edge chips¹².

The U.S.'s continued restrictions, along with those imposed by its allies, have further isolated China from the global semiconductor supply chain, making it increasingly difficult for Chinese companies to compete on the global stage. At the same time, these measures have intensified the global competition for semiconductor dominance, with countries like South Korea and Taiwan playing pivotal roles in the industry's future¹³.

The U.S.-China trade war has profoundly affected the semiconductor industry, illustrating the critical role semiconductors play in global economics and national security. The ongoing conflict underscores the strategic importance of technological self-sufficiency and has led to a reevaluation of global supply chains, with long-term implications for the industry and the global economy at large.

The IP Conundrum: Innovation Safeguard or Trade Warfare Tactic?

Intellectual Property (IP) encompasses the creations of the mind, including inventions, literary and artistic works, designs, symbols, names, and images used in commerce. These rights are crucial for allowing creators to protect their innovations and receive recognition or financial rewards. The Huawei case offers a vivid illustration of the broader competition between the U.S. and China, highlighting the struggle for dominance in technological innovation and the accompanying security risks. According to Lu Chuanying and Nicolas Huppenbauer, the actions against Huawei are not merely about business competition but are deeply intertwined with national security concerns and the quest for technological supremacy. The U.S. has imposed restrictions and banned Huawei from conducting business, citing concerns that it poses a security threat potentially involving espionage. These actions are driven by fears of Chinese tech companies compromising U.S. national security through embedded technologies. Consequently, these restrictions have had significant repercussions, disrupting Huawei's operations, affecting its supply chains, and impacting competitors within the global tech market (Lu & Huppenbauer, 2020). This case demonstrates how geopolitical tensions over IP and technological innovation can lead to significant economic and security challenges on a global scale.

In their analysis, "What the Huawei Case Can Teach Us about the U.S.-China Power Game," Lu Chuanying and Nicolas Huppenbauer position the Huawei case within the larger context of the economic and technological rivalry between the U.S. and China. The U.S. ban on Huawei and restrictions on Chinese 5G providers reflect a deepening strategic rivalry with implications for global supply chains and innovation networks. Despite these measures, the core conflict between the U.S. and China persists, challenging the rules-based international order: specifically, the liberal economic framework emphasizing free trade, transparency, and intellectual property rights, which the U.S. has long championed. The Huawei issue extends beyond market share to encompass control over technological dominance and security, influencing bilateral relations and potentially affecting U.S. soft power.

From the U.S. perspective, the actions taken against Huawei are essential for countering security threats and protecting intellectual property rights. Given the close ties between Chinese firms and the Chinese government, the U.S. administration has raised alarms about the possibility of Huawei's products being used for espionage and cyber-attacks. This approach forms part of a broader strategy to preserve technological leadership and safeguard proprietary knowledge. These restrictions are viewed as precautionary measures intended to shield the U.S. and its allies from potential threats posed by Chinese 5G networks. However, this assertive stance has sparked concerns about the potential impact on U.S. soft power, particularly regarding how it may alienate global partners. By taking a hardline approach, the U.S. risks weakening its influence and trust among allies who may see the move as aggressive, potentially driving them closer to China for technological collaboration. Additionally, the restrictions may provoke nationalistic sentiments within China, boosting Huawei's domestic support and undermining U.S. efforts to sway Chinese public opinion (Lu & Huppenbauer, 2020).

¹² Ezell, Stephen. 2024. "How Innovative Is China in Semiconductors?" Itif.org. Information Technology and Innovation Foundation | ITIF. August 19, 2024. <https://itif.org/publications/2024/08/19/how-innovative-is-china-in-semiconductors/>.

¹³ Rio-Chanona, R Maria del, Penny Mealy, Anton Pichler, François Lafond, and J Doyne Farmer. 2020. "Supply and Demand Shocks in the COVID-19 Pandemic: An Industry and Occupation Perspective." *Oxford Review of Economic Policy* 36 (Supplement_1): S94–137. <https://doi.org/10.1093/oxrep/graa033>.

Conversely, China interprets the U.S. decision to restrict Huawei as a form of protectionism aimed at hindering its growth and technological progress. Chinese officials argue that the accusations against Huawei lack substantial evidence and are motivated more by a desire to eliminate competition than by genuine security concerns. This perspective underscores China's criticism of what it views as the U.S.'s misuse of national security concerns to maintain its technological dominance and disregard for free market principles. China advocates for international collaboration and discussion on cybersecurity and intellectual property protection, suggesting that these issues can only be resolved through state negotiation (Lu & Huppenbauer, 2020).

The broader implications of the Huawei case extend to global supply chain management and innovation. The U.S. restrictions have not only impacted Huawei directly but have also disrupted global supply chains that depend on Huawei's products and services. This has introduced significant unpredictability for companies and nations caught amid this technological rift. The situation illustrates the potential dangers of a fragmented global tech landscape, where varying standards and technologies could impede competition and slow the development of beneficial innovations (Lu & Huppenbauer, 2020).

Given these challenges, there is a pressing need for rational risk assessments and cooperative strategies. Policymakers are urged to carefully evaluate risks and work together to mitigate the adverse effects of the technological divide between the U.S. and China. The research highlights the potential for win-win outcomes through peaceful competition and economic interdependence. Leaders are encouraged to move away from militaristic rhetoric and seek stability and prosperity through trust-building and active dialogue on cyber governance. Cooperation is essential to preserving the gains of globalization and ensuring the stability of the global system (Lu & Huppenbauer, 2020).

In summary, the research report analyzed here frames the Huawei case as a microcosm of the broader U.S.-China power struggle, highlighting key IP conundrums, including cybersecurity concerns, intellectual property rights disputes, and economic competition. It underscores the need for a stable, forward-looking approach that anticipates the long-term consequences of technological decoupling while fostering global cooperation to address the challenges of the digital era. The insights provided by Lu Chuanying and Nicolas Huppenbauer emphasize the necessity for more effective management of U.S.-China relations, particularly in navigating these complex IP issues within an evolving technological landscape.

The Economic Chessboard: Who's Really in Checkmate?

The economic competition between the U.S. and China has been one of the defining features of their bilateral relationship, especially in the context of trade and technological supremacy. Amy P. Celico and Song Guoyou offer a detailed examination of this dynamic in their paper, "U.S.-China Bilateral Economic Relations," tracing the evolution of trade and investment between the two nations, particularly after China acceded to the World Trade Organization (WTO) in 2001. China's entry into the WTO was a significant milestone that led to an unprecedented increase in bilateral trade and investment flows between the two countries (Goodman, Remler, and Yu n.d.). However, this period of rapid growth also exposed emerging imbalances and contentious issues, such as China's trade surplus with the U.S. and concerns over intellectual property theft. These tensions were further exacerbated by the underlying structural issues in the global economy, including the over-reliance on China for manufacturing and supply chain bottlenecks. After the global financial crisis in 2008, these structural issues led to a rise in protectionist policies, such as tariffs on Chinese goods imposed by the U.S., aimed at reducing trade deficits and protecting domestic industries.

As a consequence of these protectionist measures and the economic isolation of China, several major corporations have begun moving part or a substantial portion of their manufacturing from China to emerging markets like India, Vietnam, and Indonesia. For example, Apple, which had no manufacturing presence in India three years ago, is now producing and exporting phones and other products worth \$25 billion from the country (Zahoor et al. 2023).

Celico and Song emphasize that the U.S. has been particularly concerned with China's economic policies, which it perceives as creating unfair competition. These concerns stem from practices such as forced technology transfers, where American companies are required to share proprietary knowledge with Chinese partners as a condition for entering the Chinese market. For example, U.S. firms in sectors like automotive manufacturing and high-tech industries have faced pressure to enter joint ventures with Chinese companies, effectively handing over valuable technology (Goodman, Remler, and Yu n.d.). Additionally, China's heavy subsidies to its state-owned enterprises (SOEs) give domestic companies an unfair advantage in global markets by artificially lowering production costs. These practices, the U.S. argues, violate international trade norms and create an uneven playing field. The concern over intellectual property has led to significant friction, as the U.S. views these practices as a direct threat to its technological edge. For instance, by acquiring advanced U.S. technologies, China accelerates its innovation and development in critical industries like 5G, AI, and robotics, potentially outpacing the U.S. and undermining its global leadership in innovation (Goodman, Remler, and Yu n.d.).

To counter these perceived threats, the U.S. has employed a strategy that combines diplomatic negotiations with the threat of sanctions. Celico and Song describe how the U.S. has pushed for structural reforms in China, particularly in areas that would reduce state intervention in the economy and open up the Chinese market to more foreign competition. The U.S. has also focused on enforcing international trade rules through mechanisms like the WTO, though this has been complicated by China's growing influence within the organization (Goodman, Remler, and Yu n.d.). The U.S. strategy also involves protecting its markets by implementing measures such as increased scrutiny of Chinese investments, particularly in sectors deemed critical to national security (Goodman, Remler, and Yu n.d.). This has included the introduction of new regulations aimed at restricting foreign investments that could enhance China's strategic sectors, a move that has been seen as necessary to safeguard American interests but has also limited economic opportunities (Goodman, Remler, and Yu n.d.).

From China's perspective, the economic rivalry with the U.S. is viewed through the lens of maintaining its high economic growth rate and increasing its share of global economic power. Celico and Song argue that China has used its WTO membership as a tool to advance its economic agenda, particularly through initiatives like the Belt and Road Initiative (BRI). However, progress on critical parts of the BRI has been slow, with significant challenges in key geographies, raising questions about its effectiveness in creating new economic opportunities as initially envisioned (Goodman, Remler, and Yu n.d.). The BRI is seen as a way for China to expand its economic influence while securing resources and markets for its growing economy (Goodman, Remler, and Yu n.d.).

However, China's economic policies, such as the use of subsidies for domestic industries and technology transfer practices, have not been well-received by the U.S. Celico and Song note that these practices have led to heightened tensions, with the U.S. accusing China of unfair trade practices that distort global markets (Goodman, Remler, and Yu n.d.). Despite these accusations, China argues that these policies are essential for sustaining its economic momentum and achieving technological advancement (Goodman, Remler, and Yu n.d.). For example, China's "Made in China 2025" initiative aims to reduce dependence on foreign technology by fostering innovation and developing domestic production capacities in high-tech industries (Goodman, Remler, and Yu n.d.). This initiative is a direct response to U.S. export controls, which have sought to limit China's access to advanced technologies that could enhance its strategic capabilities (Goodman, Remler, and Yu n.d.).

Yeon Wonho elaborates on this by discussing the U.S.'s focus on enhancing supply chain resilience as a key component of its strategy to maintain technological leadership over China. The U.S. has sought to reduce its reliance on Chinese manufacturing by diversifying its supply chains, investing in domestic manufacturing, and imposing stringent export controls on technologies that could be used by China to advance its strategic interests (Goodman, Remler, and Yu n.d.). These measures are part of a broader effort to maintain U.S. technological supremacy, particularly in critical areas such as artificial intelligence, semiconductors, and biotechnology (Goodman, Remler, and Yu n.d.).

In response, China has taken steps to fortify its supply chain security, recognizing the vulnerabilities exposed by the U.S.'s actions. Yeon Wonho highlights how China has worked to reduce its dependence on foreign technology by investing in domestic innovation and building up its production capabilities (Goodman, Remler, and Yu n.d.). This has included efforts to strengthen relations with countries involved in the Belt and Road Initiative, although progress has been limited in several strategic regions. Additionally, China has sought to attract foreign direct investment in sectors that are not restricted by U.S. policies (Goodman, Remler, and Yu n.d.). China's strategy is to achieve greater self-reliance and to continue its economic growth despite external pressures from the U.S. (Goodman, Remler, and Yu n.d.).

The economic competition between the U.S. and China is thus marked by a complex interplay of strategies aimed at protecting national interests while navigating the realities of global economic integration. The U.S. is focused on maintaining its economic dominance through supply chain resilience, technological innovation, and stringent export controls. Meanwhile, China is pursuing a path of economic growth and technological advancement through initiatives like "Made in China 2025" and the Belt and Road Initiative, while also working to reduce its vulnerability to external pressures (Goodman, Remler, and Yu n.d.).

Understanding these dynamics is crucial for policymakers on both sides, as they seek to balance the need for economic competition with the benefits of international cooperation. The U.S. and China must navigate this complex landscape carefully, as the outcome of their economic rivalry will have profound implications not only for their bilateral relationship but also for the broader global economy.

Global Impact

From the U.S. viewpoint, the strengthening of alliances in the Indo-Pacific, particularly through the Quadrilateral Security Dialogue (Quad), is seen as essential to counterbalance China's growing influence in the region. The U.S. perceives the Quad, which includes India, Japan, and Australia, as a critical component of its

strategy to ensure a free and open Indo-Pacific. The U.S. views India's maritime collaborations and defense agreements, such as the Logistics Exchange Memorandum of Agreement (LEMOA), as pivotal in enhancing regional security and maintaining a balance of power. These alliances are intended to reassure regional partners of the U.S.'s commitment to countering China's assertive postures and to promote stability through collective security measures (Vijay Gokhale).

Conversely, China interprets the Quad and the strengthening of Indo-U.S. defense ties as part of a containment strategy led by the U.S. In response, China has bolstered its naval capabilities and infrastructure in the Indian Ocean, exemplified by the development of strategic ports in Gwadar, Pakistan, and Kyaukphyu, Myanmar. These developments are viewed as efforts to strategically encircle India and secure critical maritime routes. Chinese policymakers perceive India's increasing alignment with the U.S. as a direct challenge to China's regional aspirations and a threat to its strategic interests. Consequently, China is likely to continue enhancing its military presence and forging stronger ties with regional allies to counterbalance the perceived encirclement (Vijay Gokhale).

India's strategic positioning in this triangular relationship involves navigating its growing partnership with the U.S. while managing its complex relationship with China. India's increasing maritime cooperation with the U.S. is driven by the need to counter China's assertive actions in the Indian Ocean and to enhance its maritime security. The strategic triangle places India in a position where its decisions and alliances significantly influence regional dynamics. India's participation in the Quad and its defense agreements with the U.S. are seen as efforts to bolster its strategic autonomy and ensure a balance of power in the Indo-Pacific. However, India must carefully balance these alliances to avoid escalating tensions with China while safeguarding its national interests (Vijay Gokhale).

The strategic maneuvers within this triangle have broader implications for the Indo-Pacific region. The intensification of geopolitical alliances and counter-alliances contributes to an environment of heightened strategic competition and mutual suspicion. Regional countries are likely to be impacted by the power dynamics and the potential for increased militarization. The establishment of robust security architectures, such as the Quad, underscores the importance of collective security in addressing common threats and ensuring regional stability. However, the potential for miscalculation and escalation remains, necessitating continuous dialogue and confidence-building measures to mitigate risks and promote peace in the region (Vijay Gokhale).

Vijay Gokhale's article provides a detailed analysis of the strategic interplay among India, China, and the U.S. in the Indo-Pacific. The theme of Geopolitical Alliances and Trade Blocs is explored through the lens of the Quad and the strategic actions of China and India. By examining these dynamics from the perspectives of the U.S., China, and India, the article underscores the complexities and strategic calculations driving the interactions within this triangle. The analysis highlights the importance of alliances, strategic positioning, and the broader regional implications, calling for careful navigation of these relationships to ensure regional stability and security (Vijay Gokhale).

On the other hand, considering "The U.S.-China Trade War: Is Malaysia benefiting from 'Diversion' in U.S. Import Demand?" by Calvin Cheng, Firdaos Rosli, and Dwintha Maya Kartika, the analysis focuses on the impact of the U.S.-China trade war on the Malaysian economy, especially on the changes in the U.S. import demand due to tariffs imposed on Chinese goods. Using monthly import figures of products targeted by tariffs from the U.S. Census Bureau data up to June, the paper analyzes whether Malaysia has 'diverted' trade and investment. The outcome shows that some sectors of Malaysian exports to the U.S., including electrical and electronics, machinery, and rubber, have increased. However, the commutation has not significantly shifted U.S. import demand to Malaysia, with Taiwan, Japan, South Korea, and Vietnam benefiting more from this trade system. Additionally, although there are signs of improvement in approved manufacturing expansion investments, there is little evidence of a significant investment shift toward Malaysia as 2019 manufacturing FDI inflows remained relatively low (Calvin Cheng, Firdaos Rosli, and Dwintha Maya Kartika).

It can be seen that the trade and investment diversion impact is relatively small, reflecting the realities facing developing countries and small economies. Despite significant changes in the global economic landscape and various geopolitical factors, such as the U.S.-China trade war, the room for small economies like Malaysia to seize these opportunities is limited. Malaysian exports to the U.S. have recorded only a moderate rise in some sectors, unlike other regional competitors. This state of affairs calls for Malaysian policymakers to develop more appropriate policies to boost the country's attractiveness to trade and investment. The paper recommends that Malaysia should increase the pace of unilateral liberalization, including tariff reduction, trade liberalization, employment market liberalization, competition policy improvement, and better protection of IPR. Additionally, engaging more in trade and investment with non-U.S. regions through deepening regionalism is essential for Malaysia's re-positioning in the global value chain (Calvin Cheng, Firdaos Rosli, and Dwintha Maya Kartika).

The study also discusses the impact of the U.S.-China trade war on the global economy, highlighting how high tariffs and policy uncertainty hinder economic growth, disrupt supply chains, and increase firms' financing costs. These challenges are more acute for Malaysia, as it is a small and highly open economy with

significant exposure to China. The paper stresses the need to strategically manage these factors to protect Malaysia's economic welfare. This involves responding to specific areas affected by the trade war, such as rising consumer prices and reduced investment due to high uncertainty. By concentrating on strategic policy changes, Malaysia can mitigate the consequences of trade tensions and improve its economic stability (Calvin Cheng, Firdaos Rosli, and Dwintha Maya Kartika).

Cheng, Rosli, and Kartika offer a complex understanding of Malaysia's limited gains from the U.S.-China trade war in terms of trade and investment diversion. There is a need for greater focus on proactive and strategic policies to improve Malaysia's competitiveness, minimizing the general risks associated with trade disruptions globally. This study provides policymakers with valuable insights into navigating the challenging landscape of international trade in today's world, characterized by increased geopolitical risk (Calvin Cheng, Firdaos Rosli, and Dwintha Maya Kartika)

II. Policy Recommendations

Promote Collaborative Platforms on International Grounds

Encouraging the creation of a joint platform between U.S. and Chinese firms in other countries can promote cooperation and minimize direct competition¹⁴. This approach offers a practical way to ease tensions, allowing both parties to engage in mutually beneficial projects without competing in their home markets.

These collaborations can develop through bilateral agreements and partnerships, driven by shared interests in exploring new markets and technology. However, trust issues and transparency concerns necessitate a neutral entity to ensure the smooth execution of these initiatives. International trade organizations like the World Trade Organization (WTO) or specialized industry consortiums experienced in facilitating cross-border collaborations could play a crucial role. Additionally, third-party countries with strong diplomatic relations and a neutral stance, such as Switzerland or Singapore, could act as mediators in reducing the trust deficit and overseeing the establishment and management of the collaborative platform to ensure compliance with agreed-upon standards and practices.

While there is no specific policy exclusively focused on such collaborative platforms between U.S. and Chinese companies in third-party markets, existing trade and investment agreements often include provisions for cross-border collaborations. For example, the U.S.-China Phase One Trade Agreement contains elements encouraging increased cooperation and investment flows. However, a more targeted policy or initiative could be developed to specifically promote these collaborative platforms, supported by both governments and international trade bodies. By fostering these collaborative efforts with the involvement of neutral mediators, the U.S. and China can mitigate direct competition and leverage their respective strengths to achieve common goals in new and emerging markets. This approach not only helps reduce trade tensions but also drives innovation and economic growth on a global scale.

The Formation of Cyber Security Task Forces

Establishing multi-stakeholder cybersecurity task forces comprised of representatives from the pertinent industry, academia, civil society, and government negotiators from the U.S. and China, can significantly enhance the effectiveness of cybersecurity collaboration. These task forces would handle mutual security hazards, promote transparency, and develop joint strategies to tackle incidents in the semiconductor industry impacting both nations.

Such multi-stakeholder task forces can develop organically through bilateral agreements and broader international frameworks. Key stakeholders might include major technology firms, cybersecurity experts, academic institutions, and non-governmental organizations (NGOs) focused on digital rights and security. By including diverse perspectives, these task forces can benefit from a wider range of expertise and insights, fostering more robust and innovative solutions to cybersecurity challenges. Neutral mediators, such as international cybersecurity organizations or independent think tanks, could facilitate discussions and ensure that the task forces operate transparently and effectively. Organizations like the International Telecommunication Union (ITU) or the Global Forum on Cyber Expertise (GFCE) could oversee the formation and functioning of these task forces, ensuring balanced participation and addressing potential trust issues.

¹⁴ibayoumi. 2022. "Cooperation with China: Challenges and Opportunities." Atlantic Council. July 28, 2022.

<https://www.atlanticcouncil.org/in-depth-research-reports/report/cooperation-with-china-challenges-and-opportunities/>.

To support these task forces, it is essential to enforce multilateral agreements that establish clear terms and conditions for cybersecurity cooperation between the U.S. and China. Such agreements should encompass protocols for information sharing, incident response, and collaborative research on emerging threats. These agreements could be crafted through international negotiations involving additional countries to provide oversight and impartiality, thereby enhancing credibility and adherence.

Countries with strong diplomatic relations and expertise in international cybersecurity, such as Switzerland, Singapore, or the Netherlands, could act as overseers of these agreements. Their role would be monitoring compliance, mediating disputes, and ensuring the agreements are implemented effectively. The agreements can address potential conflicts, promote transparency, and build trust between the U.S. and China by including these oversight mechanisms.

By creating multi-stakeholder cybersecurity task forces and enforcing comprehensive multilateral agreements with international oversight, both nations can enhance their collaborative efforts in addressing cybersecurity threats. This approach not only strengthens bilateral cooperation but also contributes to global cybersecurity stability and fosters a more inclusive and effective framework for managing digital security challenges.

Strengthening Multilateral Trade Agreements

To address the barriers and challenges of unilateral trading, it is essential to strengthen multilateral trade agreements and institutions designed to facilitate international trade by dismantling barriers to unilateral policies. Enhancing the effectiveness of multilateral institutions such as the World Trade Organization (WTO) can play a crucial role in this process.

Strengthening these agreements can develop organically through collaborative efforts among member countries that recognize the need for a more effective multilateral trading system. This process involves engaging with various stakeholders, including national governments, international trade organizations, and industry groups, to advocate for reforms and improvements. Neutral mediators, such as independent trade experts or international trade think tanks, could facilitate these discussions, ensuring that all parties have an opportunity to contribute and that the process remains transparent and equitable.

While there is no specific policy solely dedicated to enhancing multilateral trade agreements to address unilateral trading barriers, existing frameworks do provide a basis for reform. The WTO itself is designed to promote global trade by reducing barriers and resolving disputes. However, criticisms have arisen about its effectiveness in addressing current trade dynamics and the rise of unilateral trade policies. Efforts such as the WTO's ongoing negotiations on trade facilitation and reform initiatives aim to address these issues, but there remains room for improvement.

To establish an effective multilateral trading platform, it is necessary to build on these existing efforts and advocate for reforms that enhance the WTO's capacity to address unilateral actions and ensure fair trade practices. This may involve updating the organization's rules, improving problem-solving mechanisms, and increasing member engagement in decision-making processes.

Strengthening multilateral trade agreements will create a more stable and cooperative global trade environment, making it easier for countries to forge and maintain relationships. By reducing trade barriers and ensuring fair practices, nations can build trust and collaboration, facilitating stronger economic and diplomatic ties. This approach not only addresses immediate trade challenges but also fosters a long-term environment conducive to fruitful international partnerships and sustainable economic growth.

Fostering Innovation Partnerships

To effectively foster innovation partnerships between the U.S. and China, it is crucial to address intellectual property (IP) transgressions. This involves creating innovation agreements that ensure both countries benefit from new technologies while protecting the rights of idea owners. Such agreements should promote collaborative research and development (R&D) while safeguarding IP rights, thus encouraging innovation and trust. These innovation partnerships can develop organically through bilateral agreements, driven by the mutual recognition of the importance of innovation for economic growth.

The involvement of key stakeholders such as governments, private sector companies, research institutions, and legal experts is essential for the negotiation and implementation of these agreements. Neutral mediators, such as international IP organizations or independent think tanks, could facilitate these discussions, ensuring that the process is transparent and fair. Organizations like the World Intellectual Property Organization (WIPO) could provide oversight, helping to mediate disputes and ensure compliance with international IP standards.

While there is no specific policy exclusively dedicated to fostering U.S.-China innovation partnerships that comprehensively address IP transgressions, existing frameworks such as the U.S.-China IP Rights Agreement and various bilateral IP working groups provide a basis for further development. These existing

agreements focus on preventing IP theft and improving enforcement mechanisms but could be expanded to include more comprehensive innovation partnerships.

To implement this policy effectively, a new initiative, the U.S.-China Innovation and IP Protection Partnership (UCIP3), should be established. This partnership would focus on establishing joint R&D projects in key technological areas, ensuring that both countries share the benefits of innovation, and developing robust mechanisms for IP protection, including clear guidelines for IP sharing, licensing agreements, and dispute resolution procedures. Engaging a wide range of stakeholders, including governments, private companies, research institutions, and international IP organizations, will ensure comprehensive input and commitment. Neutral mediators such as WIPO or independent think tanks can oversee the partnership, mediate disputes, and ensure adherence to agreed-upon standards. Implementing transparent processes for monitoring and compliance is also crucial to ensure that both parties adhere to the terms of the agreement and that IP rights are respected.

The practicality of this solution hinges on mutual commitment and the recognition of the long-term benefits of collaboration. Both nations must be willing to invest in the necessary infrastructure and regulatory frameworks to support these partnerships. With the right mechanisms in place, including effective mediation and enforcement, the UCIP3 initiative can address immediate concerns about IP transgressions while promoting long-term cooperation, trust, and mutual benefit in innovation. This approach not only addresses current challenges but also creates a foundation for sustained technological advancement and economic growth for both countries.

Implementing Targeted Export Controls

Implementing targeted export controls involves tightening the export restrictions on specific types of technology deemed critical to national security while allowing the free flow of non-sensitive technology. This approach enables the free flow of trade, fostering economic growth, while simultaneously bolstering national security by preventing sensitive technologies from falling into the wrong hands.

This policy can develop organically through bilateral and multilateral agreements, where both the U.S. and China agree on the specific technologies that require tighter controls. Key stakeholders, including government agencies, industry representatives, and security experts, need to be involved in defining these technologies and establishing the controls. Neutral mediators, such as international trade organizations or independent security think tanks, could facilitate the discussions, ensuring that the process is transparent and balanced. Organizations like the World Trade Organization (WTO) or the Organization for Economic Co-operation and Development (OECD) could oversee the implementation, ensuring compliance with international trade laws and standards.

While there is no specific policy solely focused on implementing targeted export controls between the U.S. and China, some similar mechanisms exist. For example, the U.S. Export Control Reform Act (ECRA) of 2018 and the corresponding Export Administration Regulations (EAR) provide frameworks for controlling the export of sensitive technologies. These regulations aim to strike a balance between protecting national security and promoting economic interests by specifying which technologies require licenses for export.

The enforcement of such a policy would require a coordinated effort between various government agencies, including the U.S. Department of Commerce's Bureau of Industry and Security (BIS) and its Chinese counterparts. These agencies would be responsible for monitoring compliance, issuing export licenses, and ensuring that sensitive technologies are adequately controlled. International cooperation and information sharing would be essential to prevent circumvention of controls and to maintain a fair trading environment.

Previous attempts to implement targeted export controls have had mixed results. In some cases, controls were too broad, stifling innovation and economic growth, while in others, they were too lax, failing to protect national security adequately. For instance, the broad restrictions imposed during the Cold War often hindered technological collaboration and economic development. To make this policy effective, a more nuanced approach is required. This involves continuous assessment and adjustment of the controls based on evolving technological and security landscapes, as well as close cooperation with industry stakeholders to ensure that controls do not unduly burden legitimate trade.

By implementing targeted export controls with the support of international mediators and clear enforcement mechanisms, the U.S. and China can protect their national security interests while promoting the free flow of non-sensitive technologies. This approach not only enhances economic cooperation but also builds trust and stability in their trade relationship.

Facilitate Economic Dialogues

Facilitating regular economic dialogues between senior officials from the U.S. and China is a strategic policy proposal aimed at continuously addressing and resolving ongoing trade problems. This approach involves establishing a structured framework for high-level talks, where both countries can discuss and negotiate solutions to trade issues in a timely and efficient manner. Such dialogues are essential for managing

the complexities of the U.S.-China trade relationship and ensuring that economic disputes do not escalate into larger conflicts.

This policy can develop organically through existing diplomatic channels and economic forums. Both countries have a history of bilateral talks and economic dialogues, such as the U.S.-China Comprehensive Economic Dialogue (CED), which was initiated in 2017. Revitalizing and expanding this framework can serve as a basis for more frequent and focused discussions. Key stakeholders in these dialogues would include senior government officials from economic and trade ministries, such as the U.S. Secretary of the Treasury and the Chinese Vice Premier, alongside representatives from relevant regulatory and trade bodies.

Uninvolved mediators could play a crucial role in facilitating these dialogues. International organizations such as the International Monetary Fund (IMF) or the World Bank, which have expertise in economic policy and trade, could act as neutral parties to ensure that the talks are conducted fairly and productively. These organizations can provide technical support, data analysis, and impartial advice to help both sides reach mutually beneficial agreements.

While there are existing frameworks for economic dialogues, the frequency and effectiveness of these talks have varied over time. The Strategic and Economic Dialogue (S&ED), which ran from 2009 to 2016, provided a platform for high-level discussions but faced challenges in producing lasting solutions to trade issues. To make this policy effective, it is crucial to establish a regular schedule for these dialogues, with clear agendas and objectives for each meeting. Both sides should commit to transparency and accountability, ensuring that agreements reached during the talks are implemented and monitored.

To facilitate these economic dialogues, it is proposed that the U.S. and China hold biannual meetings, with additional working group sessions as needed to address specific issues. These meetings should be hosted alternately in each country to demonstrate mutual respect and commitment to the process. The involvement of international mediators would help maintain neutrality and focus on achieving substantive outcomes.

By institutionalizing regular economic dialogues, the U.S. and China can create a continuous mechanism for addressing and resolving trade problems. This approach not only helps in managing current trade disputes but also builds a foundation for long-term economic cooperation and stability. Both countries can work towards a more balanced and mutually beneficial trade relationship through sustained engagement and collaboration.

III. Conclusion

The escalating U.S.-China trade war has catalyzed a significant technological decoupling, with profound implications for the global semiconductor industry. This decoupling has not only reshaped the geopolitical landscape but also highlighted the critical importance of semiconductors as the backbone of modern technology. As the U.S. and China pursue divergent technological paths, the ripple effects are felt across industries, influencing supply chains, innovation trajectories, and international alliances.

This paper has examined the causes and effects of this decoupling, from the initial tariffs to the broader strategies employed by both nations to secure technological self-sufficiency. It is evident that while the U.S. aims to curb China's technological ascent, China is equally committed to reducing its reliance on American technology. The semiconductor industry, at the heart of this conflict, is facing unprecedented challenges as companies navigate export controls, blacklists, and shifting supply chains.

In light of these developments, the need for collaborative mechanisms, such as binational cybersecurity commissions, becomes increasingly vital. Such initiatives could mitigate the risks of escalating tensions, foster dialogue, and ensure that geopolitical conflicts do not hinder technological progress.

Ultimately, the decoupling of U.S.-China technology sectors represents a watershed moment in global trade and technology policy. The outcome of this decoupling will likely define the future of international relations and the global economy, with the semiconductor industry playing a pivotal role in shaping this new world order. Therefore, policymakers must carefully consider the long-term impacts of their decisions, striving for a balance between national security concerns and the benefits of global technological cooperation.

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