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Strategic Stalemate: The Taiwan Strait through the Lens of the Prisoner's Dilemma

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Abstract

The Taiwan Strait is a flashpoint that reflects a deep-rooted power struggle between China, the US and Taiwan. This research delves into an understanding of the tensions between the stakeholders through the lens of the Prisoner's Dilemma, providing a conceptual analysis of the strategic decisions made by each actor. Employing a qualitative approach to the theoretical conceptions, the study unravels how historical grievances, mutual distrust and national interests trap the states into a recurring pattern of defection over cooperation. By analyzing the three overlapping dyads (US-China, China-Taiwan, and US-Taiwan), the study illustrates how military posturing, economic interdependence and diplomatic ambiguity shape the behavior of these states. The findings suggest that while cooperation benefits all, defection is often the preferred course of action because of mutual security dilemmas. Drawing on Robert Axelrod's theory, the study concludes that the repeated interactions between players, economic entanglements and increased reciprocity could lead the players out of the strategic trap, only if states act rational enough to prioritize long-term interests over short-term gains.

Key Words: Taiwan, Indo-Pacific, Prisoners' Dilemma, TSMC, China, US. Contextualizing the Taiwan Strait Crisis

Over the past few years, the Taiwan Strait has emerged as one of the most closely monitored and strategically sensitive regions in global affairs. Despite being geographically confined, the strait holds a critical position in international relations. The dispute, which was once regarded as a prolonged but dormant dispute between China and Taiwan, has transformed into a central point of friction within the broader context of the great power rivalry. Now, heightened tensions between China, the US and Taiwan pose wider challenges within the international system,

including the increase in military assertiveness, weakening alliances and erosion of trust among the states.

This research is driven by the recognition that the developments in the Taiwan Strait have implications that extend far beyond East Asia. So, it is crucial to understand the vested interests of the actors. The strategic importance of the region has increased with the rise of China as a great power, the US' redefined priorities in Indo-Pacific, and Taiwan's increasingly distinct democratic identity. Each of these actors aim to achieve their own set of national interests that are shaped by history, security claims and economic interests. For China, reunification with Taiwan lies at the heart of its national sovereignty. The US, although retaining the policy of strategic ambiguity, continues to extend diplomatic support and military aid to Taiwan. Finally, Taiwan, stuck between two powers, seeks to preserve its autonomy, democratic institutions and pursue a path that avoids escalation. Additionally, the technological rivalry between the US and China, and Taiwan's dominance in the semiconductor industry has added another layer of complexity to the Taiwan issue. The world is going through a transitional period. From the COVID-19 pandemic exposing the vulnerabilities of the global supply chain system, Russia's resurgence, the US shift in policies under the Trump administration, the rise of China, to the global trade wars, the world order is in shambles. Amidst this, a conflict between the two great powers over Taiwan, which is the largest semiconductor chip exporter, would be catastrophic.

Hence, this paper employs the theoretical model of the prisoners' dilemma to understand the recurrent patterns of behaviour of the US, China and Taiwan. Rather than applying mathematical calculations to reach Nash's equilibrium, the research delves into a conceptual framework for the analysis. The objectives of this research are not to propose solutions or offer predictions, instead, it seeks to explore the underlying strategic logic that perpetuates tension in the Taiwan Strait. As the geopolitical focus continues to shift towards the Indo-Pacific, a comprehensive understanding of the Taiwan issue, questions about military deterrence, and regional security become crucial. Therefore, this paper aims to contribute to the knowledge of one of the most intricate trilateral relations in the contemporary era.

Conceptual Framework: Applying the Prisoner's Dilemma to Geopolitical Strategy

The theoretical aspects of Prisoner's Dilemma (PD) have been used to understand the triadic relation between the US, China and Taiwan. PD is one of the models of game theory which captures a situation where players are stuck in their dilemmas and have to make the most viable decision either by cooperating with or exploiting the other player.¹ The choice that each player makes is based on careful calculations of strategic interests. Often, players end up in a worse off situation because of mutual distrust and the best joint outcome (cooperation) is undermined by each prisoner's fear that the other will defect.²

This model explains the US-Taiwan-China triangle with each player having overlapping PDs. Rather than one single game with three players, this game employs three dyadic dilemmas in

¹ Axelrod, Robert. *The Evolution of Cooperation*. New York: Basic Books, 1984. Pages 3–191. Excerpt available at https://public.websites.umich.edu/~axe/Axelrod_Evol_of_Coop_excerpts.pdf.

² Robert Jervis, "Cooperation under the Security Dilemma," *World Politics* 30, no. 2 (1978): 167–214, <https://doi.org/10.2307/2009958>.

which each player is given two choices, either to cooperate (restraint, economic cooperation and peace) or to defect (military buildup, expansion). In the game between the US and China, there exists a classic security dilemma where each wants to deter the other but is fearful that the other might defect first. In the case of China and Taiwan, China's goal of reunification is a threat to Taiwan's aspiration of security, recognition and formal independence. Finally, the US-Taiwan game revolves around developing closer ties, i.e. cooperation against China versus triggering escalation through their alliance.

The research is entirely based on the qualitative analysis of the relations using a game-theoretical model. Unlike the classic PD model, exact payoffs and equations are not calculated. Rather, logic and subjective study are used to understand the behaviour of states.

Research Methodology

The research is qualitative, analytical and descriptive in nature, with the main purpose of applying the theoretical aspects of Prisoner's Dilemma to understand the behaviour of the US, Taiwan and China. The study is majorly based on secondary sources, but primary data has also been incorporated to gain a better understanding of the issue. Primary sources include official briefings of the White House and Annual Defense Reports to Congress. Secondary sources consist of journal articles from foreign affairs magazine and digital library resources like JSTOR, books regarding the game theory, articles and reports published by think tanks such as CSIS, Brookings Institute, Stimson Centre, Association of Asian Studies, Atlantic Council, etc. and credible news sources like Reuters and Global Taiwan. These sources provide insights into economic, military and domestic aspects of the states involved in the game.

The approach taken in this study is an analytical case-based analysis rooted purely in the theory and supported by examples. It employs an analytical framework to assess the behaviour of states when trapped in the dilemmas. It includes the choices they make and the strategies they adopt in order to ensure relative peace and self-interest. The structure of research follows a nuanced understanding of game theory as well as the dynamics of each actor, which is then followed by the application of theoretical aspects of the Prisoners' Dilemma.

Unlike the existing studies of PD, where mathematical and statistical calculations are made to predict the choices of players, this research is purely qualitative. It is based on conceptual and logical grounds to analyze the patterns of behavior, which is done by careful assessment of key events, military actions, policy statements and diplomatic moves. All the sources consulted in this research are open source and publicly available through digital libraries, think tanks' websites, government websites and news outlets. By using a conceptually grounded and evidence-based approach, this study aims to provide a comprehensive understanding of the strategic behavior of US-Taiwan-China through the lens of the Prisoners' Dilemma.

The Strategic Triangle: Stakeholders, Interests, and Power Dynamics

➤ China's Strategy: National Reunification and Regional Dominance

The foreign policy of China regarding Taiwan is based on the narrative of national rejuvenation. Chinese President, Xi Jinping, frequently asserts that Taiwan's unification with the mainland is "inevitable" and that China is destined to get back its historic eminence.³ Also, asserting that

³ Reuters. 2024. "China's Xi Says 'reunification' With Taiwan Is Inevitable," January 1, 2024.

people on the mainland and the Island are the same Chinese countrymen separated by a strait. Furthermore, the domestic legitimacy of the Chinese Communist Party is based on this narrative of national revival, whose main agenda is the reunification of Taiwan with the Chinese mainland.⁴ Practically, China refers to Taiwan as an “Indisputable Chinese province”, which further solidifies China’s opposition to an independence of Taiwan.⁵

To attain these objectives, China has been investing in the military modernization of the People’s Liberation Army (PLA). The PLA is engaging in transformative reforms to become a joint, full-spectrum force. The upgrading to long-range precision weapons (as shown in the 2023 Joint Sword Exercises) of the PLA Army or enhancing the power projection capabilities of the fleet beyond the first island chain by the PLA Navy (PLAN) are examples of how China has been modernizing its military that would help China become the ultimate dominator of Asia-Pacific.⁶ Also, the PLAAF (People’s Liberation Army Air Force) has been upgrading aircraft, unmanned aerial systems and missile arsenals, including nuclear-capable ICBMs.⁷ In Taiwan, these developments have been interpreted by Taiwan as encirclement tactics, igniting a security dilemma. China has also been frequently showing its superior force through military exercises (e.g the multi-day “Joint Sword” drills since 2023) and occasional missile firing near Taiwan, increasing its sense of insecurity.⁸

The U.S. Approach: Strategic Ambiguity and Geopolitical Calculations

The US employs the foreign policy of strategic ambiguity towards Taiwan. Since the 1970s, the US has maintained a “One China Policy”. On one hand, it has recognized and developed economic ties with the People's Republic of China and on the other hand, it has not formally endorsed an independent Taiwan. However, the US policy commits to strategically supporting Taiwan under the “Taiwan Relations Act 1979”, helping Taiwan with self defence and protection of the

<https://www.reuters.com/world/asia-pacific/china-calls-taiwan-president-frontrunner-destroyer-peace-2023-12-31/#:~:text=,China%20will%20surely%20be%20reunified.>

⁴ John Dotson, “The Chinese Communist Party’s Ideological Frameworks for Taiwan Policy,” *GTI “Counter Ideological Work and Political Warfare” Research Series*, no. 22 (August 2024): 3,

https://globaltaiwan.org/wp-content/uploads/2024/08/OR_CCP-Ideological-Frameworks-for-TW-Policy.pdf.

⁵ Mark Metcalf, “The National Humiliation Narrative: Dealing with the Present by Fixating on the Past,” *Education About Asia* 25, no. 2 (Fall 2020): 47,

<https://www.asianstudies.org/publications/eaa/archives/the-national-humiliation-narrative-dealing-with-the-present-by-fixating-on-the-past/>

⁶ U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2024*, Annual Report to Congress (Washington, DC: Department of Defense, December 18, 2024),

<https://media.defense.gov/2024/Dec/18/2003615520/-1/-1/0/MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA-2024.PDF>.

⁷ *ibid*

⁸ Brian Hart, “China Escalates Cross-Strait Military Activity Under Taiwan President William Lai,” *Center for Strategic and International Studies*, February 14, 2025,

<https://www.csis.org/analysis/china-escalates-cross-strait-military-activity-under-taiwan-president-william-lai>.

sovereignty of the island.⁹ Additionally, the US classifies it as a key partner in the Indo-Pacific region, yet appears to be distanced when in a triad with China.¹⁰

Taiwan is also economically important to the US, as it dominates critical segments of the global semiconductor supply chain which remains dependent on Taiwanese microchips.¹¹ These chip industries are very vital for the US, as policymakers have pursued policies like the CHIPS Act to safeguard these supply chains. This interdependence adds on a layer to the US' interests in Taiwan's resilience and security.

Taiwan's Position: Preserving Autonomy Amidst Great Power Rivalry

Amidst this pressure, Taipei has been maintaining its status quo. Statistics show that a large number of Taiwanese people insist on keeping the existing cross-strait arrangement, i.e. de facto autonomy without formal independence.¹² All the major political parties also hold the same stance regarding Taiwan's position in global affairs. For example, the ruling party, Democratic Progressive Party (DPP), affirms its commitment to maintaining the status quo across the strait. Taiwan has displayed itself as a functioning multiparty democracy, fostering global participation and international cooperation. Since the 1990s, Taiwan has actively sought to participate in international institutions, negotiating trade agreements and cultivating unofficial ties with the democracies around the world.¹³ The Taiwanese leaders have portrayed Taiwan as a responsible liberal actor, which further solidifies Taiwan's stance in the international arena.

Finally, Taiwan's strategic calculus is strongly shaped by its role in the semiconductor industry. It refers to this industry as "silicon shield", which would protect the island from Chinese aggression.¹⁴ Building on this, Taiwan has pursued techno-diplomacy to solidify this shield. According to Taiwanese policymakers, global dependence on Taiwan's semiconductor chip industry would act as a deterrent to Chinese aggression and would strengthen Taiwan's diplomatic outreach.¹⁵

⁹ Shareh Qazi and Basit Ali, "US-China and a New Taiwan Crisis: Deciphering Dimensions of Power Politics in the Pacific Ocean," *The Beacon* 4, no. 1 (September 19, 2024): 5, https://pnwc.paknavy.gov.pk/thebeaconjournal/crs/Vol4No1_2024/1.pdf.

¹⁰ Jennifer Kavanagh and Stephen Wertheim, "The Taiwan Fixation: American Strategy Shouldn't Hinge on an Unwinnable War," *Foreign Affairs* 104, no. 2 (March/April 2025): 90-105.

¹¹ William Alan Reinsch and Jack Whitney, "Silicon Island: Assessing Taiwan's Importance to U.S. Economic Growth and Security," *Center for Strategic and International Studies*, January 10, 2025, <https://www.csis.org/analysis/silicon-island-assessing-taiwans-importance-us-economic-growth-and-security>.

¹² Craig Kafura, Dina Smeltz, Kuan-chen Lee, and Christina Chen, "Americans and Taiwanese Favor the Status Quo," *Chicago Council on Global Affairs*, December 2, 2024, <https://globalaffairs.org/research/public-opinion-survey/americans-and-taiwanese-favor-status-quo>.

¹³ Jessica Drun, *Taiwan's Engagement with the World: Evaluating Past Hurdles, Present Complications, and Future Prospects*, Issue Brief (Atlantic Council, February 22, 2024), <https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/taiwans-engagement-with-the-world/>.

¹⁴ Richard Cronin, "Semiconductors and Taiwan's 'Silicon Shield,'" *Stimson Center*, August 16, 2022, <https://www.stimson.org/2022/semiconductors-and-taiwans-silicon-shield/>.

¹⁵ Gregory Arcuri and Samantha Lu, "Taiwan's Semiconductor Dominance: Implications for Cross-Strait Relations and the Prospect of Forceful Unification," *Center for Strategic and International Studies*, March 22, 2022,

Game Theory in Practice: Mapping the Prisoner's Dilemma onto the Taiwan Conflict

➤ U.S.–China Dynamics: Security Dilemmas and Economic Entanglements

In the context of Washington and Beijing bilateral relations, mutual cooperation tends to be more fruitful than defection. Cooperation may constitute a stable economic relation, arms control agreements, and redirection of attention toward matters like climate change. Conversely, defection would lead to the imposition of tariffs and an arms race. So, both countries benefit the most when they cooperate. However, if one side defects, for example, imposing tariffs on the other, it would pressurize the other's economy while keeping itself protected. This relationship may present the cooperating side as weak, but in the long run, the cooperating side would eventually defect. When both sides defect, it would lead to economic wars, heightened tensions and military buildup. Hence, through analyzing the mutual payoffs, the best outcome for both the US and China in this case is to cooperate. The US-China relationship dynamics are said to be perfectly fit with the theory of prisoners' dilemma, where cooperation yields the best interests but neither trusts the other enough to cooperate.¹⁶ The recent US-China trade war is an example indicating this dilemma. It is in the best interest of both players to cooperate, but if one defects, as it happened during Trump's second term, it would reap the benefits of market dominance while making the other struggle economically and politically.¹⁷ To counter the US-imposed tariffs, China came up with its retaliatory tariffs. According to PIIE's report, the US has imposed 51.1% tariffs on 100% of Chinese goods.¹⁸ Similarly, Chinese tariffs on US imported goods have exceeded upto 32.6%.¹⁹ In such cases where both defect, they both suffer the consequences. However, this spiral was short-lived. A joint press brief by both players was made public on May 12, 2025, where they agreed on easing trade tensions by removing tariffs that they had recently imposed on each other.²⁰ Hence, as described by PD, the constant interaction of players results in a reduced likelihood of defection. Similar logic can be applied to the US and China while interacting in Indo Indo-Pacific region. Both the countries benefit from respecting the norms of the region and open lines of communication, but a constant dilemma persists that the other might secure a strategic advantage. For instance, the Chinese military buildup and assertiveness towards Taiwan are

<https://www.csis.org/blogs/perspectives-innovation/taiwans-semiconductor-dominance-implications-cross-strait-relations>.

¹⁶ Shannon Tiezzi, "US-China Relations: Thucydidean Trap or Prisoner's Dilemma?" *The Diplomat*, March 24, 2014,

<https://thediplomat.com/2014/03/us-china-relations-thucydidean-trap-or-prisoners-dilemma/>.

¹⁷ Shannon Tiezzi, "US-China Relations: Thucydidean Trap or Prisoner's Dilemma?" *The Diplomat*, March 24, 2014,

<https://thediplomat.com/2014/03/us-china-relations-thucydidean-trap-or-prisoners-dilemma/>.

¹⁸ Chad P. Bown, "US-China Trade War Tariffs: An Up-to-Date Chart," *Peterson Institute for International Economics*, May 14, 2025,

<https://www.piie.com/research/piie-charts/2019/us-china-trade-war-tariffs-date-chart>.

¹⁹ *ibid.*,

²⁰ The White House, "Joint Statement on U.S.-China Economic and Trade Meeting in Geneva," *The White House* May 12, 2025

<https://www.whitehouse.gov/briefings-statements/2025/05/joint-statement-on-u-s-china-economic-and-trade-meeting-in-geneva/>.

perceived by the US as China's aspirations for regional or global dominance.²¹ From the Chinese perspective, the US reinforcement of regional partnerships and military assistance is a form of strategic encirclement.²² Neither trusts the other side to hold back, leading to constant demonstrations of force either through air or naval exercises or through sharpened rhetoric. For the US, it is in its best interest to back off and let Taiwan defend itself, but China's increasing assertiveness, coupled with the US' partnerships with states in the Indo-Pacific, has transformed the Taiwan conflict into a matter of credibility.²³ Yet the cost of credibility does not equate with the cost of war. The author of *Foreign Affairs* magazine describes this dynamic as, "Taiwan certainly matters to the United States- just not enough to justify a war with China."²⁴

➤ **China–Taiwan Tensions: Reunification Versus Resistance**

This relationship can also be well defined by the PD framework. Here, cooperation would mean respecting the status quo and deterring conflict. China would have to give up on its dream of reunifying China, and Taiwan would have to give up on aspirations of declaring formal independence. In case of defection, Taiwan's declaration of independence or increased militarization would upset the cross-strait balance, whereas the provocation of military action or economic coercion by China would undermine Taiwan's security. For both sides, cooperation is a viable option. If Taiwan moves towards declaring independence (defecting), China could view it as an opportunity for a "win big", reinforcing its narrative of reunifying China. If China defects by initiating a military blockade or exercise, Taiwan would lose by facing increased threats and international isolation, whereas China would consolidate power and undermine US credibility. In a mutual defection scenario, China would invade or heavily coerce, and Taiwan would strongly retaliate, triggering the worst outcome- all-out cross-strait conflict.

Recent developments underscore this dynamic. After Taiwan's January 2024 election of DPP candidate Lai Ching-te, China reacted strongly, accompanied by increased military action, sanctions, and even the death penalty for the supporters of Taiwan's independence.²⁵ Additionally, China has been conducting fire drills around the island, and Taiwan is responding with an increased defence readiness. In the view of PD, both states are

²¹ Joshua D. Kertzer, Ryan Brutger, and Kai Quek, "Perspective Taking and Security Dilemma Thinking: Experimental Evidence from China and the United States," *World Politics* (Harvard University, October 1, 2023), https://jkertzer.sites.fas.harvard.edu/Research_files/SCS_KQB_Web.pdf.

²² Yun Sun, "China's Strategic Thinking toward the U.S. Role in the Indo-Pacific, 2017–2020," *The Asan Forum*, February 28, 2024, <https://theasanforum.org/chinas-strategic-thinking-toward-the-us-role-in-the-indo-pacific-2017-2020/>.

²³ Jennifer Kavanagh and Stephen Wertheim, "The Taiwan Fixation: American Strategy Shouldn't Hinge on an Unwinnable War," *Foreign Affairs* 104, no. 2 (March/April 2025): 90–105.

²⁴ *Ibid.*, 96

²⁵ Reuters, "China Threatens Death Penalty for 'Diehard' Taiwan Separatists," *Reuters*, June 21, 2024, <https://www.reuters.com/world/china/china-issues-guidelines-criminal-punishment-diehard-taiwan-separatists-2024-06-21/>.

defecting. Lack of trust entraps the two into a spiral where each has to resort to aggressive measures in order to avoid appearing weaker.

➤ **U.S.–Taiwan Relations: Ambiguity, Alliance, and Strategic Risks**

This relationship also explained with the PD pattern, complicated by US strategic ambiguity. Cooperation in this relationship means that the US continues to support Taiwan's self-defence and Taiwan stops its moves towards formal independence. However, this will not sit well with China. In case of defection, the US could abandon or reduce its support to Taiwan, and Taiwan could make a unilateral move towards formal independence. In case of mutual defection, Taiwan would be strategically isolated, and the US would lose credibility and primacy.

In September 2024, the US announced a package of \$567 million to Taiwan.²⁶ While some were concerned that it could escalate tensions, the US retained its narrative that it is adhering to policies set in the Taiwan Relations Act. Also, Taiwan did not move with the declaration of independence, but rather preserved the status quo. In October 2024, the US approved a package of 2 billion dollars, which was met with a sharp reaction from China, sending warships on a combat patrol around Taiwan.²⁷ Taiwan indicated that it would defend itself in the face of this threat. Furthermore, the US committed defect-type acts like arms sales that caused China to also defect, i.e. through increased military exercises. This spiral of defection resulted in mutual suffering as there was a loss of trade and communication, and the chances of miscalculations were increased.

In summary, the US, Taiwan, and China exhibit a PD triad, in which mutual cooperation would yield broadly better outcomes like economic gains, regional stability, and peace. However, mutual fears, insecurities, and dilemmas lead players to defect (arms race, trade wars, military drills, and hostile rhetoric).

Strategic Modifiers: Semiconductors and Economic Interdependence

Taiwan has a unique place in the world economy as a leading center of high-end semiconductor production. Taiwan Semiconductor Manufacturing Company and other Taiwanese companies manufacture a major proportion of the world's chips. It is estimated that TSMC produces more than 80% of the semiconductor chips.²⁸ Whereas, China imports around 60% of chips from Taiwan.²⁹ Practically, it is in the interest of both the US and China to keep these industries operational. Any disruption could have severe effects on the global tech supply Chain.³⁰

²⁶ Focus Taiwan, "U.S. Announces Largest-Ever US\$567 Million Military Aid Package for Taiwan," *Focus Taiwan*, September 30, 2024, <https://focustaiwan.tw/politics/202409300006>.

²⁷ Ben Blanchard and Ryan Woo, "Taiwan Reports Chinese 'Combat Patrol' after Beijing Slams US Arms Deal," *Reuters*, October 27, 2024, <https://www.reuters.com/world/asia-pacific/china-vows-countermeasures-after-2-bl-10-27/>.

²⁸ Luke Patey, *A Taiwan Crisis Is a China Crisis: The European Union Must Prepare for the Economic Consequences of War in East Asia* (Danish Institute for International Studies, 2024), <http://www.jstor.org/stable/resrep65312>.

²⁹ Kenneth Ong, "China's Defiant Chip Strategy," *Foreign Policy Research Institute*, June 28, 2024, <https://www.fpri.org/article/2024/06/chinas-defiant-chip-strategy/>.

³⁰ Luke Patey, *A Taiwan Crisis Is a China Crisis: The European Union Must Prepare for the Economic Consequences of War in East Asia* (Danish Institute for International Studies, 2024), <http://www.jstor.org/stable/resrep65312>.

Realistically, both Beijing and Washington aim to assert control over these supply chain companies as it is in their interest not to let the other gain control over it.³¹

This interdependence has tangible effects on PD payoffs. On one hand, strong economic connections provide an incentive to cooperate. China is dependent on Taiwan for the manufacturing of legacy chips, while Taiwan has investments in the mainland.³² In times of peace, both sides benefit from this cooperation. Also, these semiconductor chips produced by Taiwan are too precious for China to break the cooperation.³³ According to the PD framework, the high costs of defection often raise the stakes of mutual cooperation, thus tilting each player towards cooperation. Similarly, both the US and China realize that damaging or letting the other damage Taiwan's industries would impact their own national interests.

Conversely, this dependence generates vulnerabilities and strategic urgency for China, making it a long-term security threat. Should Beijing be able to develop equal capabilities at home, Taiwan's leverage- the deterrence against armed attack due to global dependency- would vanish.³⁴ For this, China is hopeful of producing at least 70% of the semiconductor chips on the mainland by 2025.³⁵ More recently, the Chinese government has given vast subsidies to the chip industry while increasing sanctions on the foreign chip companies.³⁶ In PD terms, China has decreased the cost of defection in its game with Taiwan by reducing vulnerability and becoming self-dependent. A similar kind of strategy has been adopted by the US as well. China becoming the next biggest semiconductor chips importer would give it a strategic dominance, so the US had to take prompt steps to become self-reliant.³⁷ One of such steps is the CHIPS Act 2022, reducing the US dependence on its importers in East Asia.³⁸ The US, just like China, has imposed export controls on GPUs and high-end chip tools.

These export restrictions, initially imposed in 2022 and further restricted in 2023-2024, serve as an example of rebalancing the game's payoffs. The underlying motivation for the US is national interest, i.e. to slow down China's military and technological advancements by not letting it

³¹ Samuel George, "Semiconductors, Supply Chains, and the Fate of Taiwan," in *In Chains*, ed. Linda Jaivin, Esther Sunkyung Klein, and Annie Luman Ren, 1st ed. (Canberra: ANU Press, 2023), 211, <http://www.jstor.org/stable/ji.11930986.21>.

³² Jeremy Mark and Niels Graham, *Relying on Old Enemies: The Challenge of Taiwan's Economic Ties to China* (Atlantic Council, November 17, 2023), <https://www.atlanticcouncil.org/in-depth-research-reports/report/relying-on-old-enemies-the-challenge-of-taiwan-s-economic-ties-to-china/>.

³³ David Sacks, "Will China's Reliance on Taiwanese Chips Prevent a War?" *Council on Foreign Relations*, November 30, 2023, <https://www.cfr.org/blog/will-chinas-reliance-taiwanese-chips-prevent-war>.

³⁴ Yasmin Tadjdeh, "China on Quest for Semiconductor Independence," *National Defense* 103, no. 785 (2019): 7, <https://www.jstor.org/stable/27022529>.

³⁵ Ibid.,

³⁶ Sujai Shivakumar, Charles Wessner, and Thomas Howell, "The Limits of Chip Export Controls in Meeting the China Challenge," *Center for Strategic and International Studies*, April 14, 2025, <https://www.csis.org/analysis/limits-chip-export-controls-meeting-china-challenge>.

³⁷ Vishnu Kannan and Jacob Feldgoise, "Goals and Limitations of the CHIPS Act," in *After the CHIPS Act: The Limits of Reshoring and Next Steps for U.S. Semiconductor Policy* (Washington, DC: Carnegie Endowment for International Peace, 2022), 5, <http://www.jstor.org/stable/resrep44937.4>.

³⁸ Ibid.,4

access advanced tools and chips.³⁹ In the light of PD, under such circumstances, defection becomes more appealing than cooperating, since it cannot reliably cooperate through trade. Hence, semiconductors complicate the payoff of PD. On one hand, Taiwan's dominance in the chip industry could increase the stakes in upholding peace, where all the parties could benefit from the continued export of tech goods. Contrary to it, the strategic competition over these goods between players could raise the payoffs of defecting, as China seeks to erode Taiwan's control by trying to enhance its industry, and the US seeks to deny China access to cutting-edge tech. Therefore, the semiconductor economy becomes a "modifier", changing the payoff.

Breaking the Strategic Deadlock: Conditions for Cooperation

In his article "evolution of cooperation", Robert Axelrod suggests a few ways in which states or individuals could cooperate while stuck in a PD.⁴⁰ One of the ways is repeated interaction among players. When players are certain that they will have to interact for infinite times, as happens among states in the international system, cooperation would be the most viable option. In the repeated sets of games, players would choose to have the optimal advantage from mutual cooperation. As Axelrod puts it; "An indefinite number of interactions, therefore, is a condition under which cooperation can emerge."⁴¹

The logic can be applied to the interaction between the US, Taiwan and China. For each of them, today's restraint could yield benefits for tomorrow's interaction. Multiple overlapping interactions between these players, like economic incentives, diplomatic talks, and trade negotiations, can yield benefits over a large period of time.

Another way suggested by the scholar is immediate reciprocity or increasing the cost of defection.⁴² When the defecting players, in a repeated game, know that their actions would have severe consequences, they would choose not to defect. The way recent tariffs imposed by the Trump administration were backfired and China immediately came up with its own tariffs shows that states need to urgently respond to defection. This will reduce the possibilities of defection in future as states would be certain of a reaction. Also, if the cost of defection is higher than the payoff of cooperation, it would be more suitable to cooperate.

Conclusion

The analysis suggests that mutual mistrust, geopolitical interests and domestic politics interlock the US, Taiwan and China in a Prisoners' Dilemma trap. Each player in three dyads benefits the most from cooperation, but due to mutual fear of defection, peace could not be preserved for a long period. This framework also highlights why, instead of preserving the status quo, states choose to escalate. States prefer self-interest and unilateral advantages through trade

³⁹ Sujai Shivakumar, Charles Wessner, and Thomas Howell, "The Limits of Chip Export Controls in Meeting the China Challenge," *Center for Strategic and International Studies*, April 14, 2025, <https://www.csis.org/analysis/limits-chip-export-controls-meeting-china-challenge>.

⁴⁰ Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 1984), 1–9, <https://ee.stanford.edu/~hellman/Breakthrough/book/pdfs/axelrod.pdf>.

⁴¹ Ibid., 4

⁴² Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 1984), 7, <https://ee.stanford.edu/~hellman/Breakthrough/book/pdfs/axelrod.pdf>.

barriers, military buildup, which provokes the other, leading to a continued pattern of mistrust. Additionally, economic interdependence and the semiconductor industry play a crucial role in determining the dynamics of the relationship.

For these states, breaking out of the prisoners' Dilemma requires constant interaction, which would help them establish trust and a realization that short term gains may lead to long term consequences. Additionally, urgent reciprocity could prevent the states from defecting. As the states would know that their action could have consequences, so through the cost benefit analysis, they might opt for a strategy that could yield benefits in the long run. Through diplomatic channels and dialogue, states can minimize the mutual distrust that obstructs cooperation. The realization of the strategic trap for each can lead the way towards cooperation. In the International system, states cannot exist in isolation. Therefore, continued interaction, economic interdependence and institutional commitments could help states find a way to cooperate and restrain the others from defection.