Proceedings of ICILLP 2025 Symposium: Property Law and Blockchain Applications in International Law and Legal Policy
DOI: 10.54254/2753-7048/2025.LD29014

How Has the US-China Trade Conflict and, Particularly, Unilateral Trade Sanctions and Tariffs Outside the WTO Changed the Incentives for How Firms Structure Their Supply Chain?

Ruhua Shi

Business School, University of Edinburgh, Edinburgh, United Kingdom
s2291272@ed.ac.uk

Abstract. With the presence of unilateralism today, companies usually rely on legal systems to maintain functionality. However, firms have to independently seek a foothold in the market when facing scenarios that are outside of the institutions' jurisdiction. This paper proposed three hypotheses, including the null hypothesis: The US-China trade conflict has changed firms' supply chains, and it was rejected due to the reliance of companies on legal systems, hence leading to no incentive for self-rescue. The second hypothesis states that Exposure to the US-China trade conflict and unilateral measures has led firms to reconfigure supply chains and diversify their seats of arbitration. It was explained by Apple's decision to transfer arbitration seats and Huawei's localisation strategy. Hypothesis 3 (The US-China trade conflict has led firms to adopt more private legal protection, given the unavailability of international dispute settlement) was supported by firms' internal adjustment of contracts. Given these results, firms are encouraged to actively engage in cross-industry alliances to collaboratively structure sanctions or establish dual headquarters, which allows greater political flexibility.

Keywords: unilateralism, trade conflict, tech sector, supply chain

1. Introduction

The current state of the U.S.-China trade war is escalating, which has significantly disrupted supply chains, driven up costs, and reshaped international economic law. A traditional WTO dispute resolution mechanism has become less effective; therefore, firms are pushed to adjust and restructure their contracts, shift their supply chains, and utilize private legal mechanisms to internalize the risk.

While prior literature has predominantly focused on the legal-political and macroeconomic level of trade conflicts, often putting emphasis on the legality of unilateral measures under WTO law and state-to-state dynamics, few studies explain how, in the tech sector in particular, firms make strategic responses themselves in response to legal uncertainties. This study differentiates from other literature by providing a firm-level perspective and seeks to answer how the evolving international

© 2025 The Authors. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

DOI: 10.54254/2753-7048/2025.LD29014

economic law and the growth trend of privatized legal governance led to rising protectionism. The example of two quintessential tech giants, Apple and Huawei, is used to analyze how unilateralism changed the firms' incentives with the excuse of national security in the tech industry. By introducing the concepts of Export Administration Regulations (EAR), Entity List, and Foreign Direct Product Rule (FDPR), how the two companies operate in different geopolitical contexts, redesign their arbitration seats, and diversify their geographical presence is clear. Understanding these dynamics not only has significant implications for business operations but is also of great importance for scholars and policymakers studying the decline of multilateralism and the changes in the geographical layout of global production networks.

2. Literature review

After the state-level analysis, this section focuses on a more micro level, elaborating how specific legal tools such as the EAR, Entity List, FDPR, and unilateral tariffs in the US-China conflict pushed firms to substantially adjust their contract clauses, reflecting a trend in which the legal system directly influences the design of contracts and the structure of dispute resolution.

While the debate over the legality of the national security exception clause at the multilateral level is still ongoing, global businesses have already felt the impact of such unilateral measures. The macro insights reveal a common yet controversial phenomenon in the US-China relations, in which the techno-economic sanction is done under the name of national security. The US has unevenly blacklisted some major Chinese tech firms, including Huawei, citing national security. The Biden Administration has also justified the wide-ranging chip export controls on China (effective on 7th Oct. 2022), and it amounts to a de facto ban [1]. China, hence, has made efforts to be self-reliant in the semiconductor and key tech industry in mitigating the impact on its supply chain due to export controls. For example, Beijing started reshoring manufacturing to consolidate the domestic supply chain in order to be less dependent on international suppliers [2].

However, the researches explain how businesses respond to the law, rather than what they do to withstand it. Branstetter argues that, unlike previous efforts, the US sanctions against China are not aiming at changing Chinese firms' behaviour, but rather inhibiting their technological development. Firms are compelled to include sanctions, carve-outs, and export control compliance clauses in their contracts, and selecting Hong Kong or Singapore as seats of arbitration, as well as citing UK and US common law, is a deliberate legal defence strategy [3] . In the semiconductor industry, a large number of companies rely on the US for software design, semiconductor manufacturing equipment, and various other inputs provided by the United States. With a powerful speaking right, the United States has threatened the companies that dominate the manufacturing process to lose access to key raw materials; firms, therefore, are compelled to participate in an initiative aimed at cutting off the access of certain Chinese companies (such as Huawei) to advanced semiconductor channels [4]. In the face of sanctions, Chinese enterprises have circumvented export controls by combining non-export-restricted hardware with efficient software strategies. Gupta et al. pointed out that Chinese companies such as Tencent have weakened the control boundaries of US export controls (such as FDPR) on access to advanced hardware by using NVIDIA H20 chips that are not on the controlled list, along with efficient software and model training methods [5]; Crosignani et al. also suggested that, regarding the export restrictions on semiconductors and high-tech equipment, force majeure, change-in-law, and sanctions carve-outs have been commonly included in the company's contracts [6]. This enables the contracts to have the flexibility to suspend performance or adjust terms, thereby maintaining the stability of the supply chain in the event of sudden changes in sanctions or tariff policies.

DOI: 10.54254/2753-7048/2025.LD29014

3. Methodology, hypothesis and case study

Given the increasing uncertainty, enterprises have also established their own private and practical operational mechanisms to mitigate geopolitical risks. This section adopts a comparative case study analysis examining how the two leading tech firms in the US and China, Apple and Huawei, have behaved differently during the first US-China trade war and subsequently adjusted their incentives to restructure supply chains and contracts. As two tech giants that are directly affected by unilateral trade measures, comparing Apple and Huawei in examining the context of the bilateral trade conflict of the two powers holds certain significance. They represent contrasting geopolitical and institutional environments. However, they are both supported by the state and with significant political implications; therefore may not necessarily reflect the patterns of the less prominent enterprises. The historical case provides a benchmark for firms' strategic adaptations, and we analyse around three hypotheses:

• H1: The US-China trade conflict has changed firms' supply chains.

• H2: Exposure to the US-China trade conflict and unilateral measures has led firms to reconfigure supply chains and diversify their seats of arbitration.

• H3: The US-China trade conflict has led firms to adopt more private legal protection, given the unavailability of international dispute settlement.

When the WTO system was still in operation, firms largely relied on state-to-state channels, without systematic contract or supply chain redesign. When the first US–China trade conflict commenced in July 2018, approximately $550 billion in US tariffs were imposed on Chinese goods. As a retaliation, China has imposed around US$185 billion on U.S. exports. Tariffs escalated in multiple rounds of negotiation, reaching rates of up to 25%-50% [7]; this eventually led to the signing of the first phase of the trade agreement in January 2020. During this phase, both the tech giants, Apple and Huawei, had remained passive beneficiaries of broader state-led legal mechanisms. After being placed on the Entity List in 2019, Huawei responded primarily through diplomatic and legal channels. Instead of restructuring its supplier agreements, it relied on the Chinese government's complaint with the WTO (e.g., DS543), which challenged the legality of the Section 301 tariff measures taken by the US regarding its GATT obligations. However, Apple managed to secure temporary exemptions for some of its products through political lobbying. The US invoked GATT XXI, claiming that the tariffs were due to national security and therefore were immune to WTO review [7]. Many countries view the Security Exception proposed by the US as a loophole in the system, weakening the effect of WTO arbitration rulings [8]; Bown also suggested that the real aim of the US initiating trade investigations based on Section 301 is to change China's technology and intellectual property policies [9]. Critiques suggest that the business passivity is not due to incapacity, but because the legal system could still be relied upon, and the sense of crisis at the contractual level had not been triggered at that time. In this baseline, although Apple successfully obtained tariff exemptions through lobbying, this was a practice relying on administrative privileges and lacked an institutionalised contract risk mitigation path. Meanwhile, Huawei relied on the government appeal mechanism without adjusting its internal contract structure, reflecting that enterprises generally lacked legal strategy awareness during the period when the legal mechanism was still functional. This passive reliance on the state's channels is particularly vulnerable after the failure of the WTO system, and firms did not shw signs of proactive self-rescue through supply chain adjustments. Therefore, we reject H1 for the current phase.

On the other hand, the current stage of US-China tension suggests that when the appellate body is still non-functional, and the key measures (including the FDPR or Entity List) are outside the tariff regulations of the WTO, enterprises turn to contractual redesign with geographical realignment.

DOI: 10.54254/2753-7048/2025.LD29014

Apple had to strategically switch its suppliers because Chinese businesses were facing significant tariffs that were driving up the costs. As a result, the share of the US smartphone assembly business completed in China dropped from 61% to 25% in 2024. In mid-2025, India had not only become the primary manufacturing center for selling smartphones to the US, but also saw a 240% year-on-year increase in their domestic smartphone shipments [10]. This achievement was mainly attributed to Apple's decision to accelerate the relocation of its supply chain from China to India amid the uncertain trade environment between the two countries [11]. On the Chinese side, after being added to the US Entity List in 2019 and facing FDPR restrictions, the supply chain of Huawei's computer components and software has been severely threatened, and access to US-origin technologies was greatly limited, blocking Huawei's core suppliers, including Intel, Qualcomm, Broadcom, and TSMC. In response to this shock, Huawei has strategically accelerated its domestic localisation: By 2023, the Mate 60 series achieved a 90% domestic substitution rate for components and circuit boards, overcoming the restrictions imposed by the US [12]. This achievement was accomplished through cooperation with local Chinese suppliers such as SMIC in the semiconductor field and BOE Technology in the display field, thereby reducing the reliance on the US and Taiwan suppliers. Together, these outward and inward shifts by the two tech giants support H2's claim that unilateralism has altered the supply-chain geographically.

Geographical hedging measures can reduce the risk of losses resulting from unilateral actions, but enterprises also need a reusable legal defence mechanism. Thus, they began to adopt contractual protection measures and arbitration design (H3). While only member governments under the WTO Dispute Settlement Understanding have standing, large firms can only respond with contractualization of legal risks. To align with the US EAR, Huawei has embedded contract terms, including force majeure, technical origin declarations, and choice-of-law clauses into supplier agreements [13]. That being said, Huawei's reliance on government subsidies and its adoption of second-generation manufacturing technology through SMIC reveal China's structural limitations of self-reliance. Apple also revised its contracts with major suppliers, adding sanction carve-outs, export control compliance, and relocation of the seat of arbitration to Singapore or Hong Kong [14]. These locations apply to the UK or US common law, and such action has become a part of its proactive legal risk management strategy, creating a cross-border private-law buffer. In addition, Apple adopted a contractual model in its iCloud data arrangement in China, transferring the responsibility for data management to a state-owned Chinese company, namely Guizhou Cloud Big Data Company [15]. The legal responsibilities should be borne in accordance with China's "Cybersecurity Law". This structure adjustment in the contract enabled Apple to maintain business continuity under the increasingly strict legal supervision. The cases indicate that when public international remedies are not available, legal risk management has become a core corporate behaviour. Thus, H3 was supported by the current evidence: when WTO resources are either inaccessible or ineffective, firms internalise legal risk through private tools. That being said, the actual effectiveness of these measures is still lacking sufficient empirical research in theory. The accessibility of arbitration results is yet limited, and the dispute resolution procedure is kept confidential; it is difficult to assess whether these clauses have been triggered and successfully reduced legal risks. This limitation indicates the need for further research after sanctions.

4. Recommendations

In light of the findings, firms are recommended to take proactive steps to develop collective legal standards, rather than solely relying on legal institutions. First, firms can restructure their operations and engage in cross-industry alliances. Participating in USCBS to propose task forces on codes that

DOI: 10.54254/2753-7048/2025.LD29014

respond to sanctions or export controls together. Second, establishing dual headquarters or regional hubs in tariff-neutral zones, for example, enables firms to remain flexible in the face of geopolitical disruptions and trade sanctions. This aligns with Apple's change in arbitration seats and relocation of manufacturing and Huawei's localisation strategy. Through such collective actions, businesses can gain influence in anticipating legal changes and shaping trade policies. However, it should be acknowledged that these measures may take years to implement, rather than a timely solution, because businesses take years to gain negotiation power.

5. Conclusion

In the context of the limited applicability of the WTO mechanism and the increasing use of unilateral trade measures, enterprises are increasingly relying on private law mechanisms (such as adjusting contract terms and designing arbitration) to deal with cross-border legal uncertainties. In Apple's case, it relocated its arbitration and manufacturing sites in response to China's cybersecurity laws. Huawei's case indicates its attempts to file complaints and restructure supply contracts. We found that firms are increasingly relying on private governance strategies rather than state-level channels when the WTO system's enforceability is limited. This research helps to understand how international economic law is reshaped in practice (at the enterprise level) when public relief measures are no longer feasible.

References

[1] Yang, H. (2023). Securitization, frame alignment, and the legitimation of US chip export controls on China. The Pacific Review, 37(5), 961–984. https: //doi.org/10.1080/09512748.2023.2288961
[2] Lee-Makiyama, Hosuk, and Robin Baker. (2021). US Sanctions Against Chinese 5G: Inconsistencies and Paradoxical Outcomes. Brussels: European Centre for International Political Economy, October 2021. https: //ecipe.org/blog/us-sanctions-against-chinese-5g/
[3] Branstetter, L., Carnegie Mellon University, & NBER. (2024). Export controls and U.S.-China technology competition in an interdependent world. https: //www.brookings.edu/wp-content/uploads/2024/05/20240528_ES_Sanctions_Branstetter_Final.pdf
[4] Bown, Chad P. and Dan Wang (2024). Semiconductors-and-modern-industrial-policy. Scribd. https: //www.scribd.com/document/822863911/bown-wang-2024-semiconductors-and-modern-industrial-policy
[5] Gupta, R., Walker, L., & Reddie, A. W. (2024, November 21). Whack-a-Chip: The futility of Hardware-Centric export controls. arXiv.org. https: //arxiv.org/abs/2411.14425
[6] Crosignani, M., Han, L., Macchiavelli, M., Silva, A. F., Federal Reserve Bank of New York, & University of Massachusetts Amherst. (2024). Securing technological leadership? The cost of export controls on firms. In Federal Reserve Bank of New York Staff Reports (Journal-Article No. 1096). https: //www.newyorkfed.org/medialibrary/media/research/staff_reports/sr1096.pdf?sc_lang=en
[7] Wong Dorcas, and Alexander Chipman Koty. "The US-China Trade War: A Timeline." China Briefing News, August 25, 2020. https: //www.china-briefing.com/news/the-us-china-trade-war-a-timeline/.
[8] Wolff, Alan Wm., and Warren Maruyama. "Saving the WTO from the National Security Exception." SSRN Electronic Journal, May 2023. https: //doi.org/10.2139/ssrn.4453718.
[9] Bown, Chad P. "The US–China Trade War and Phase One Agreement." SSRN Electronic Journal, April 22, 2021. https: //doi.org/10.2139/ssrn.3810026.
[10] Kachwala, Zaheer. Edited by Tasim Zahid. US smartphone market sees sluggish growth as India-made phones surge, Canalys says | Reuters, July 29, 2025. https: //www.reuters.com/business/media-telecom/us-smartphone-market-sees-sluggish-growth-india-made-phones-surge-canalys-says-2025-07-28/.
[11] Chaurasia, Sanyam. "India's Smartphone Market Grew 1% Yoy in 1h25 to 70 Million Units." India's smartphone market enters 2025 with weak consumer sentiment, Q1 shipment fell 8% , April 21, 2025. https: //my.idc.com/getdoc.jsp?containerId=prAP53737525.
[12] Swales, Julia. "Huawei Continues to Localise Its Supply Chain." Transport Intelligence, February 4, 2025. https: //ti-insight.com/briefs/huawei-continues-to-localise-its-supply-chain

DOI: 10.54254/2753-7048/2025.LD29014

[13] Federal Register, August 20, 2020. https: //www.federalregister.gov/documents/2020/08/20/2020-18213/addition-of-huawei-non-us-affiliates-to-the-entity-list-the-removal-of-temporary-general-license
[14] Collins, Georgia. Apple shifts supply chain by diversifying production | Supply Chain Magazine, May 12, 2025. https: //supplychaindigital.com/procurement/apple-pivots-to-india-with-expected-us-22bn-output.
[15] Apple iCloud: State Firm Hosts User Data in China. BBC News, July 18, 2018. https: //www.bbc.com/news/technology-44870508.