"The US's Power-Based Bargaining and the WTO: Has Anything Really Been Gained?"

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Abstract:

In this paper, adoption of “power-based” bargaining by the United States in trade negotiations is evaluated. A simple game-theoretic structure highlights that use of “bargaining” tariffs by the United States elicited credible retaliation by China through a trigger strategy, bilateral tariffs returning to a non-cooperative equilibrium. This has come at some cost to US consumers, taxpayers, and farmers, although the latter group have regained market share following implementation of the US-China Phase One Trade Agreement. Unfortunately, the Agreement fails to deal with a key reason for the trade war, the Chinese economic model, and the use of implicit subsidies.

Keywords: WTO, power-based bargaining, tariffs, subsidies, trade agreements

JEL codes: F13, Q17

Introduction

The rules-based multilateral trading system established under the General Agreement on Tariffs and Trade (GATT) and its successor the World Trade Organization (WTO) is based on two pillars constraining exercise of bargaining power: reciprocity where member countries seek a balance of tariff concessions in trade negotiations, and non-discrimination through the most-favored nation (MFN) principle (Jackson, 1989). These rules, along with the argument GATT/WTO has ensured resolution of a terms-of-trade prisoners' dilemma (Bagwell and Staiger, 1999; 2002; 2010), have resulted in progressive reduction of tariffs in the post-war period (Bagwell, Bown, and Staiger, 2016; Baldwin, 2016), and a substantial increase in the global volume of trade (Subramanian and Wei, 2007; Chang and Lee, 2011).

In a recent article, Mattoo and Staiger (2020) interpret the trade war between the United States and China as the former switching from a "rules-based" to a "power-based" approach to trade negotiations, specifically targeting a country with which it has consistently run a bilateral trade deficit with higher "bargaining" tariffs. This switch in trade policy emphasis has been driven by several well-documented concerns the United States has about its trade relations with China, including the latter's higher average bound tariffs, its bilateral trade surplus with the US, manipulation of its exchange rate, and its violation of WTO rules (USTR, 2018; Morrison, 2018). A key component of this "power-based" approach is that the United States has also effectively disabled the dispute settlement system of the WTO by paralyzing its Appellate Body (AB) (Pauwelyn, 2019; Bown and Keynes, 2020; Chow and Sheldon, 2021).

Superficially, "power-based" bargaining has worked: in signing the United States-China Phase One Trade Agreement (USCTA) on January 15, 2020 (USTR, 2020), China committed to a voluntary import expansion (VIE) over 2017 baseline levels, implying a combined $200 billion worth of additional imports of US products (agricultural, manufactured, and energy) for the two-year period January 1, 2020 through December 31, 2021 (Bown, May 25, 2021).[1] China's imports of US manufactured and agricultural products had reached 60 and 64 percent respectively of their commitment for 2020, and through April 2021, they had reached 71 and 87 percent respectively of the year-to-date target(s) (Bown, May 25, 2021).

However, the apparent success of "power-based" bargaining in bringing China to the trade negotiating table, comes at considerable actual and potential cost, and it does not substantively contribute to resolution of a fundamental problem facing the WTO: how to deal with China's current economic model. To paraphrase Jennifer Hillman's prescient testimony to the US-China Economic and Review Security Commission in 2018, the US does not "…avoid a narrow, deficit-focused bilateral deal…" (Hillman, June 8, 2018, p.2).[2] To develop this argument, the current paper is broken down into three key parts.

First, in evaluating the shift by the United States to "power-based" bargaining, a dynamic game structure due to Zissimos (2007) combined with the canonical model of the GATT/WTO due to Bagwell and Staiger (1999), are used to describe the process by which the United States and China have pushed their bilateral tariffs towards a non-cooperative tariff equilibrium which is significantly beyond the combination of their pre-2018 MFN bound tariffs and applied anti-dumping duties (Bown, 2019a, 2021). Specifically, this draws on the idea that the GATT/WTO dispute settlement mechanism relies on two forms of punishment depending on the extent to which a country deviates from it is tariff concessions: first, if the deviation is "non-abusive", an affected

[1] The introduction of a VIE harks back to the era of "managed trade" between the United States and Japan in the 1980s (Bown and Keynes, 2020). As a trade policy instrument, they have rarely been used by policymakers, and are not even covered by typical undergraduate textbooks in international economics.

[2] From 1998-2007, Jennifer Hillman served as a commissioner at the United States International Trade Commission (USITC), and then served from 2007-2011 a member of the WTO's Appellate Body. Interestingly, the United States blocked Hillman's reappointment to the AB in 2011 (Payasova, Hufbauer, and Schott, 2018)

country can withdraw an equivalent amount of market access; and second, if the deviation is "abusive", an affected country can implement more substantial punishment. Essentially, the latter can be thought of as a standard trigger-strategy where there is reversion to the Nash equilibrium, i.e., a country "ploughs over the final backstop of a GATT ruling" (Bagwell and Staiger, 2002). Based on this game, the sequence of moves in the US-China trade war are examined, the conclusion being that the two countries have got very close to a non-cooperative Nash equilibrium, which in principle could result in suspension of GATT/WTO obligations by both countries under GATT Article XXIII.

Second, the dynamic game outlined relies critically on the assumption that the punishment mechanism described is a sub-game perfect equilibrium, i.e., the threat of substantial punishment for an "abusive" deviation is credible. Given this, it is argued that the United States seemingly failed to recognize China would rationally retaliate with discriminatory and targeted tariffs at a range of imports from the United States. In the case of soybeans, with China being the world's largest importer, it was able to negatively affect US international terms-of-trade, i.e., the average US soybean export price fell significantly when tariffs were initially implemented by China, putting downward pressure on US farm incomes (Adjemian *et al.*, 2019), with a significant amount of trade also being diverted to other exporting countries such as Brazil (Carter and Steinbach, 2020). The latter resulted in compensatory payments to US farmers through the Market Facilitation Program (MFP), pushing the United States close to violating its WTO commitments on farm subsidies in 2019 and 2020 (Glauber, September 16, 2020).

While a generous interpretation of "power-based" bargaining would point to the successful negotiation of a bilateral trade agreement, in the third part of the paper, the focus is on showing that the USCTA contains no disciplines on China's use of subsidies. Specifically, it fails to address a fundamental concern the United States and other members have with the WTO: the weakness of its subsidy rules in general and specifically in relation to China (Wu, 2016, 2019; Bown, 2019a; Bown and Hillman, 2019). The policy conclusion to be drawn is that there are two options: either the United States might be better served working with a coalition of WTO members to address the Chinese economic model, or there needs to be a new modality at the WTO where members seek to negotiate changes in the rules, thereby relieving the burden on the AB to interpret and augment the existing rules.

1. The Shift to "Power-Based" Bargaining

The Economic Logic of GATT/WTO

The underlying logic of the GATT/WTO has been explained by trade economists in terms of the resolution to a terms-of-trade prisoner's dilemma (Johnson, 1953-54; Bagwell and Staiger, 1999, 2002; Zissimos, 2007). Assume a world where two countries produce and consume two final products, country *i* having a comparative advantage in producing *i*, $i \in \{1,2\}$, both countries being large enough to influence their terms-of-trade. With appropriate assumptions, the equilibrium welfare w^i of country *i* can be defined as a function of tariffs, $w^i(\tau_t^i, \tau_t^j)$, where $\partial w^i / d\tau_t^i > 0$, $i \in \{1,2\}$, the terms-of-trade gain to *i* outweighing any domestic deadweight loss due to the tariff. In the absence of a trade agreement, the equilibrium of the tariff game is defined as: $w^i(\hat{\tau}^i, \hat{\tau}^j) \geq w^i(\tau^i, \hat{\tau}^j)$, where $\hat{\tau}^i$ are the static Nash equilibrium tariffs, neither country being able to change their tariff strategy and be better off. The net result is that each country loses market access to the other country's market because of tariffs, the reduction in the volume of international trade being economically inefficient.

The latter outcome suggests it would be Pareto-improving for countries to agree to reduce their tariffs, and in the absence of a binding bilateral agreement between them, the GATT/WTO has essentially neutralized the terms-of-trade incentive for countries to raise tariffs (Bagwell and Staiger, 1999). In other words, if terms-of-trade effects have been removed from any country's objective function, it will set tariffs to satisfy domestic political objectives alone. These would be either zero if a country seeks to maximize its national income through free trade, or they would be positive to satisfy domestic political constraints, but importantly, they are lower than those in a non-cooperative game (Bagwell and Staiger, 1999). Therefore, if countries enter into a trade agreement, they will seek mutual reductions in tariffs generating an increase in national and global economic welfare.

The lower tariff equilibrium under GATT/WTO has also been supported by a credible enforcement mechanism embodied in the dispute settlement process. Standard game theory suggests countries would have an incentive to deviate from a low-tariff equilibrium. However, in a standard repeated game, the punishment for not adhering to a trade agreement is reversion to the static Nash equilibrium of high tariffs, i.e., a trigger strategy (Dixit, 1987). In practice, the rules of GATT/WTO seek to maintain the balance of tariff concessions and avoid the use of punitive, and therefore economically destructive actions (Staiger, 1995).

Essentially, if one country were to raise its tariff, this would imply a loss of previously negotiated market access for the other country. Assuming that this action is not "abusive", under GATT/WTO rules, specifically GATT Article XXIII, the other country can withdraw an equivalent amount of market access. However, if a country deviates in an "abusive" manner, there is reversion to the trigger strategy, i.e., under GATT Article XXIII, there can be an indefinite suspension of GATT/WTO obligations, both countries setting Nash equilibrium tariffs (Jackson, 1989).[3] In other words, the objective of GATT/WTO rules is to ensure that retaliation by one country against the unilateral action of another is proportionate, thereby minimizing the chances of a trade war.

More formally, assume that payoffs to a country over an infinite time horizon are, $(1-\delta)\sum_{t=1}^{\infty}\delta^t w^i(\tau_t^i,\tau_t^j)$ where δ is a common discount rate, and the equilibrium tariff reduction path is $\{\tilde{\tau}\}_{t=1}^{\infty}$, where for simplicity symmetry is assumed, i.e., both countries choose the same tariff in every time period, $\tilde{\tau}_t$ being the agreed tariff in period *t*. Ignoring the possibility of a country choosing a tariff below the agreed level, there are two potential deviations z_t from the equilibrium tariff path:

$$\Delta(z_t,\{\tilde{\tau}_s\}_{s=t}^{\infty}) = \begin{cases} (1-\delta)w^i(z_t,\tilde{\tau}_t)+\delta w^i(z_t,z_t) & \text{if } \hat{\tau} > z_t > \tilde{\tau}_t \\ (1-\delta)w^i(z_t,\tilde{\tau}_t)+\delta w^i(\hat{\tau},\hat{\tau}) & \text{if } z_t \geq \hat{\tau} > \tilde{\tau}_t \end{cases}.$$

The intuition for this result is straightforward: first, if the deviation z_t from the agreed tariff $\tilde{\tau}_t$ is less than the Nash equilibrium tariff $\hat{\tau}$, it is not considered "abusive", the other country withdrawing an equivalent amount of access in all future periods through also setting z_t; second, if the deviation z_t from the agreed tariff $\tilde{\tau}_t$ is greater than or equal to the Nash equilibrium tariff $\hat{\tau}$, it is considered "abusive", the other country setting $\hat{\tau}$ in all future periods.

Importantly, where the deviation is not "abusive", withdrawing an equivalent amount of market access is a sub-game perfect strategy, i.e., the punishing country knows that if it instead chooses $\hat{\tau}$ as opposed to z_t, this will result in a suspension of GATT/WTO obligations with indefinite imposition of $\hat{\tau}$ by both countries. Necessarily, if the deviation is "abusive", reversion

[3] Zissimos (2007) suggests that, while GATT/WTO rules contain no formal definition of what constitutes an "abusive" deviation, a reasonable interpretation would be one where there is a "sufficiently deep" breakage of tariff commitments already honored for some time.

to the Nash equilibrium tariffs will always be sub-game perfect, i.e., in this case the deviating country cannot expect withdrawal of an equivalent amount of market access by the punishing country.[4] Therefore, if $\tilde{\tau}_t$ does not generate a local price in country 1 that satisfies its domestic political constraints, by the rules of renegotiation allowed under GATT Article XXVIII, it could request raise its tariff to z_t, knowing country 2 will withdraw an equivalent tariff concession, thereby maintaining both countries' terms-of-trade.

"Rules-based" vs. "Power-based" Trade Negotiations

To place the shift by the United States to "power-based" bargaining in context, it is key to see how a "rules-based" approach effectively neutralizes any imbalance in bargaining power between countries. In Figure 1, w^i are iso-welfare contours, N is the initial Nash equilibrium before any trade agreement is struck, and EE traces out tariff combinations τ^i that are Pareto efficient. Suppose country 1 uses its bargaining power to push for equilibrium at B, but trade negotiations break down, country 2's welfare contour shifting to $\widehat{w}^2$, due to the relationship-specific sunk costs of it participating in tariff negotiations (McLaren, 1997).[5] Alternatively, if either country chooses not to participate in trade negotiations at all, the equilibrium remains at N. For country 2, the payoff at their *ex-ante* Nash threat point N exceeds the payoff at their *ex-post* Nash threat point $\widehat{N}^2$, i.e., it is rational for country 2 not to enter a trade agreement with country 1. In contrast, under "rules-based" bargaining with reciprocity, the eventual equilibrium is at R, the payoff to country 2 in the low tariff equilibrium clearly exceeding that at its *ex-ante* threat point N. Importantly, a country such as the United States with bargaining power, has an incentive to commit to a "rules-based"

[4] Zissimos (2007) appeals to Friedman's (1971) "Nash-threats" folk theorem in formally deriving and proving these results. He also uses the model to explain the gradual process of trade liberalization in the post-war period.
[5] McLaren's (1997) argument is that agents in country 2 will incur sunk costs by investing in the export sector in anticipation of a trade agreement with country 1.

approach, to get weaker countries to engage in trade negotiations (Jackson, 1989; Bagwell and Staiger, 1999).

With countries following a "rules-based" approach, successive rounds of trade liberalization since the formation of the GATT in 1947 have moved tariffs from the Nash equilibrium at *N*, with tariffs of $\hat{\tau}$, towards the equilibrium at *R* with tariffs of $\tilde{\tau}$. Why then did the United States revert to "power-based" bargaining against China in 2018? Mattoo and Staiger (2020) offer the following rationalization under the rubric of China being an example of the "latecomer's problem": specifically, when China acceded to the WTO in 2001, it was offered $\tilde{\tau}$, the tariff level already committed to by existing GATT/WTO members (countries 1 and 2), but China was able to set its best-response tariff τ^C, maximizing its welfare at *C*.[6] The US response to this lack of uniformity in tariffs has been to argue in favor of "full" reciprocity in trade negotiations where tariffs are reduced to the same level as opposed to the GATT/WTO approach of "first-difference" reciprocity based on mutual concessions on market access (Chow and Sheldon, 2019).

Given the asymmetry between US and Chinese tariffs, and with China accounting for a large share of world trade, "bargaining" tariffs may be the only way in which the United States can achieve the bilateral outcome *R* on the contract curve *EE*, increasing welfare relative to their Nash threat point against China (Mattoo and Staiger, 2020).[7] In Figure 1, the United States raises its tariff against China to τ^B in the expectation that a bilateral agreement will be reached where China reduces its tariffs from their current bound level at τ^C to $\tilde{\tau}$. The logic for doing this is that because China runs a large bilateral trade surplus with the United States, "bargaining" tariffs represent a

[6] See Bagwell and Staiger (2014) for a discussion of the "latecomer's problem" in the context of their GATT/WTO model.
[7] Mattoo and Staiger (2020) note that renegotiations under GATT Article XXVIII, in combination with further multilateral tariff negotiations in the WTO, could reorient tariff commitments toward reciprocity between developed countries of the "North" and emerging countries in the "South".

strong US-threat point.[8] This of course assumes that China is unable to present a credible threat of their own by responding with a tariff increase to $\tau^{C'}$, moving the US-Chinese bilateral tariff equilibrium closer at *C′* to the pre-GATT/WTO equilibrium at *N*.

Tariffs and the US-China Trade War

The recent history of tariffs imposed by the United States and China on each other's imports is summarized in detail by Bown (March 16, 2021). Prior to 2018, US-China bound tariff rates toward each other averaged respectively 3.1 and 8 percent. By the end of 2018, average US tariffs on 46.9 percent of its imports from China had been raised to 12 percent, matched by an increase in average Chinese tariffs to 16 percent on 56.3 percent of its imports from the United States. By the time, the USCTA was signed in early-2020, average US tariffs on 58.3 percent of its imports from China had risen to 19.3 percent (26.7 percent including anti-dumping duties), while average Chinese tariffs on 66.4 percent of its imports from the United States had risen to 19.3 percent (21.2 percent including anti-dumping duties) (Bown, 2021).[9] Bown and Zhang (May 14, 2019) note that, over this two-year period, average US tariffs against China were close to double the level of combined average US tariffs and anti-dumping duties of 10.4 percent prior to 2018, approaching the average tariff level of 32.3 percent imposed under the Smoot-Hawley tariff act of 1930.[10]

This sequence of moves on tariffs bears out the analytical argument made earlier. First, the 2018 implementation of tariffs under Section 301 of the US 1974 Trade Act does not satisfy the criterion of being "non-abusive", there being no attempt by the United States to seek renegotiation of its existing tariff commitments to China under GATT/WTO rules. Second, a WTO panel ruled

[8] While the focus of the current paper is on trade policy in the context of trade negotiations, there is a recent literature in macroeconomics focusing on trade policy as a substitute for monetary policy in the context of currency wars. For example, see Auray, Devereux, and Eyquem (2020), and Jeanne (2018).
[9] If tariffs had been extended to almost 100 percent of US imports from China, the average would have increased to 27.8 percent (Bown and Zhang, May 14, 2019).
[10] When import-weighted, average US tariffs in 1930 were 28 percent (Bown and Irwin, 2018).

in China's favor on September 15, 2020 that the tariffs were "…*prima facie* inconsistent…" with both Articles I.1 and II of the GATT 1994, i.e., the tariffs are both discriminatory and in excess of the rates "…to which the United States bound itself in its Schedule of Concessions…" (WTO, November 26, 2020).[11] Third, even though China filed a complaint in 2018, the fact that it retaliated immediately with substantial tariffs of its own suggests that it was willing to implement a trigger-type strategy well before the subsequent Panel ruling in 2020. Fourth, the extent of escalation of tariffs by both countries through 2019 indicates both countries had moved to applying trigger strategies, pushing their bilateral relationship to a non-cooperative equilibrium. Finally, notwithstanding the USCTA, tariffs implemented by both countries remain in place (Bown, 2021).

2. An Evaluation of the Impact of "Power-Based" Bargaining

Both theory and casual empiricism indicate that the United States under-estimated the willingness of China to retaliate to its initial use of "bargaining" tariffs. Game-theoretic analysis of the GATT/WTO predicts it is sub-game perfect for one country to punish another with reversion to a Nash trigger strategy if the latter is deemed to have committed an "abusive" trade action. This is precisely what happened in 2018-2019 as the US-China trade war escalated. In addition, the United States also reverted to a trigger strategy in response to China's retaliatory actions. Given this substantive breach of the multilateral trading system, what has been the cost?

The Economic Costs of "Power-Based" Bargaining

Essentially, the US-China trade war represents a natural experiment in the sense that such wide-ranging increases in tariffs have not been seen since the 1930s. In addition, other key trading US trading partners, including Canada, the European Union (EU), Japan, and Mexico were also

[11] The United States subsequently filed an appeal against the Panel's findings to the WTO's Appellate Body (AB) on October 26, 2020. Given the current paralysis in the AB, it is very uncertain as to when the appeal will be heard.

dragged into the conflict, most notably after the United States implemented tariffs against steel and aluminum imports in 2018. Not surprisingly, applied trade economists have already conducted in-depth research on the impact of the trade war on the US economy, the most notable being Amiti, Redding, and Weinstein (2019), Cavallo *et al*. (2019), and Fajgelbaum *et al*. (2020).

Of the studies cited, the latter is the most detailed. The authors constructed a monthly panel data set using publicly available tariff schedules issued by the US International Trade Commission (USITC) along with US import and export data published by the US Census Bureau, where the tariff data are defined at the 8-digit level of the Harmonized Tariff Schedule of the United States (HTSUS), and the import data are defined at the HTSUS-10-digit level. In addition, data on retaliatory tariffs were collected from the Ministry of Finance for China, the Department of Finance of Canada, the Office of the President of Mexico, and the WTO (covering the EU, Russia, and Turkey), tariffs being measured by China at the 6-digit level of the Harmonized Convention.

During 2018, US tariffs were targeted at 12,043 specific products at the HTSUS-10-digit level, where in 2017, these imports were valued at $303 billion, accounting for 12.7 percent of total US imports. The average *ad valorem* tariff increased by from 2.6 to 16.6 percent. In terms of retaliatory tariffs on U.S. exports by Canada, China, Mexico, Russia, Turkey, and the EU, these accounted for $127 billion of U.S. exports, 8.2 percent of total exports, covering 8,073 products.

US tariffs were mostly targeted at China, and Chinese retaliatory tariffs against the US dominate, supporting the contention that the trade war has essentially been between these two countries. In 2018, the United States targeted 11,207 products accounting for 49 percent of total imports from China, tariffs increasing on average from 3.0 to 15.5 percent, while China targeted 7,474 products, tariffs increasing on average from 8.4 to 18.9 percent. The data also show that the most protected US sectors were primary metals, machinery, computer products, and electrical equipment and appliances, while US trading partners targeted different products, most notably agricultural imports.

Fajgelbaum *et al*. (2020) initially conducted an event study consisting of comparing targeted and non-targeted US imports and exports. In the case of imports, the results indicate their value and quantity declined by 20 and 23 percent, respectively. They also find initial evidence that the incidence of US import tariffs was borne entirely by US consumers, tariff-inclusive unit values of imports increasing significantly as compared to before-tariff unit values which did not change. A similar pattern was found in the case of exports, where their value and quantity fell by 24 and 25 percent respectively, with no change in their before-tariff unit values, i.e., there was, complete passthrough of retaliatory tariffs to foreign consumers.

Fajgelbaum *et al*. (2020) also evaluated the impact of tariff increases on US import demand and foreign export supply. Their econometric results show that both the value and quantity of US imports declined in response to the application of tariffs, Amiti, Redding, and Weinstein (2019) finding similar effects in their study. However, Fajgelbaum *et al*. (2020) also find that there was no impact of US tariffs on before-tariff unit values. The latter result provides further evidence for complete passthrough of the tariffs to tariff-inclusive prices borne by US consumers. Similar results are reported for the impact of retaliatory tariffs on US exports – there were significant declines in both the value and quantity of exports, but there was no reduction in before-tariff unit values by US exporters. By contrast, Cavallo *et al*. (2019) found that there was imperfect passthrough of these tariffs to Chinese import prices of agricultural products.

The finding that incidence of US tariffs was almost entirely borne by US consumers is consistent with the results of other studies using different estimation methodologies. However, it is also a surprising result given the growing empirical support for the terms-of-trade theory of trade agreements (Broda, Limão, and Weinstein, 2008; Bagwell and Staiger, 2011; Bown and Crowley, 2013; Ludema and Mayda, 2013). Over a longer time-period, it might be expected that exporters would eventually cut before-tariff prices, especially if there was resolution of exporter uncertainty about how long the tariffs will remain in place. Interestingly, a follow-up study with data for 2019, shows that there is some variation across sectors, e.g., US tariffs led foreign steel exporters to lower their before-tariff prices (Amiti, Redding, and Weinstein, 2020).

Fajgelbaum *et al*. (2020) also quantified the effects of the trade war in 2018 using an applied general equilibrium model of the US economy. Their results were as follows: first, US consumers of imported goods in aggregate lost $51 billion due to higher prices; second, US exporters saw an increase in their income of $9.4 billion; and third, US tariff revenue totaled $34.3 billion. Therefore, the net effect of the trade war was an aggregate loss of US real income of $7.3 billion, which can be thought of as an approximation of the deadweight loss from tariffs. This compares to Amiti, Redding, and Weinstein's (2019) estimated net real income loss of $8.2 billion.

In summary, the empirical evidence clearly shows that the incidence of import tariffs implemented in 2018 was entirely borne by US consumers, any terms-of-trade effects on the import side being insignificant. Also, if there had been no retaliation by China and other countries, there would have been a modest US real income gain of $0.5 billion in 2018 due to significant terms-of-trade effects on the export side. In other words, the logic of "power-based" bargaining only ever had the potential to work if China and other countries had not adopted a trigger strategy in response to the increase in US tariffs.

The Impact of Retaliatory Tariffs on US Agriculture

Carter and Steinbach (2020) provide the first detailed analysis of the effect of retaliatory tariffs against the US agricultural sector. In their study, they used a monthly panel dataset of tariffs targeted against US products at the HTSUS 8 and 10 digit-levels, collected from the finance and trade ministries of Canada, China, the EU, India, Mexico, Russia, and Turkey. These tariff data were matched with US export data from the Global Trade Atlas. The data indicate that average tariffs on US agricultural products increased from 8.3 to 28.6 percent on 908 products accounting for $32 billion worth of US exports. Retaliatory tariffs disproportionately affected agricultural products compared to other sectors, and the tariff increases were also steeper, the average *ad valorem* tariff increasing from 8.3 to 28.6 percent. Notably, the most significant retaliation was by China, who imposed tariffs on $25.5 billion of U.S. imports.

Carter and Steinbach also used an event study to identify the impact of the retaliatory tariffs on US agricultural exports, based on exploiting differences in export quantities, values, and unit values between targeted and non-targeted products over time. Their reported results indicate that retaliatory tariffs had a significant impact on agricultural trade. First, the United States saw a 55 percent reduction in its exports to retaliating countries worth -$15.6 billion (trade destruction), which was only partially offset by a 0.8 percent increase in exports worth $1.2 billion to countries that did not implement tariffs (trade deflection), i.e., net destruction of US agricultural exports was -$14.4 billion. Second, non-retaliating countries experienced a 31 percent expansion of their exports to retaliating countries worth $13.5 billion (trade diversion). These effects were also very concentrated at the product level, with trade destruction and trade diversion being particularly significant for soybeans at -$7.1 billion and $3.7 billion respectively, trade in pork products and coarse grains such as corn also being affected. Overall, US exporters appeared to have had difficulty in adapting their supply chains to non-retaliating countries, while other exporting countries were able to increase their market share in retaliating countries at the expense of the US.

The findings of Carter and Steinbach (2020) have subsequently been reinforced by results reported in Grant *et al*. (2020). Their analysis is based on using monthly bilateral import and export data for 753 commodities at the 6-digit level of the Harmonized Schedule (HS) from the Trade Data Monitor, for 81 countries over the period 2016-2019. From this, the authors estimate a gravity equation designed to evaluate the impact on US agricultural exports of the retaliatory tariffs imposed by several of its trading partners. Importantly, this study controls for any pre-exiting trade distortions that had little to do with the trade war. The key results reported by Grant *et al*. (2021) are: first, due to tariff retaliation, the US agricultural sector suffered annualized trade losses of $13.5 to $18.7 billion, China accounting for the majority and severity of the retaliation; second, losses were larger for bulk commodities compared to differentiated products, damage to soybean exports being estimated at $10.7 billion.

The US-China Phase One Trade Agreement (USCTA)

A critical component of USCTA was China's commitment to expand its imports of covered products from the United States by a combined $200 billion over the two-year period 2020-2021, above 2017 baseline levels, of which $77.7 billion and $32 billion would be additional imports of US manufactured and agricultural products, respectively. Translated into annual targets, this implied total product purchasing commitments by China of $173.1 billion (2020) and $193.3 billion (2021), manufactured import purchases of $112.2 billion (2020) and $123.1 billion (2021), and agricultural import purchases of $36.6 billion (2020) and $43.5 billion (2021) (Bown, May 25, 2021).

At the time these commitments were made, they were characterized as VIEs (Bown and Keynes, 2020; Feenstra and Hong, 2002), that would be difficult for Chinese state-owned enterprises (SOEs) to meet under a regime of managed trade (Bown and Lovely, March 3, 2020).

Two interdependent factors were considered to militate against SOEs satisfying the import targets. First, private trading firms have been mostly responsible for Chinese imports, SOEs purchasing only 26 percent of Chinese imports in 2019 (Bown and Lovely, March 3, 2020). Second, despite the USCTA, China did not formally reduce its retaliatory tariffs. Instead on February 17, 2020 the Chinese Ministry of Finance established a process by which tariff exemptions could be requested. At present, it is unclear how many exemptions have been made and subsequently accepted, by which firms in which industries, and firm-type (private *vs*. SOE) (Bown, 2021). Essentially, imports would be based on choices made by the Chinese government.

For the first year of USCTA, China fell short of its annual import target(s) by 42, 40, and 36 percent for total, manufactured, and agricultural products, respectively. In terms of its import commitments, China has clearly underperformed relative to the target(s), although this should be placed in the context of how the COVID-19 pandemic affected global trade flows in 2020. Focusing specifically on agriculture, prior to the pandemic, some observers suggested that, based on its previous agricultural import growth rate, China would find it difficult to meet the USCTA targets (Bown, January 21, 2020). Although the 2020 target was missed, year-to-date imports for 2021 are currently only 13 percent off target (Bown, May 25, 2021).

Early analysis of the pandemic indicates that agricultural trade has been resilient compared to trade in manufactured products, China accounting for 95 percent of the observed $20 billion increase in world agricultural trade in 2020 (Arita *et al*., 2021). The import demand shock, especially for grain and soybean-use in animal feed, has been driven by China rebuilding its hog production capacity devastated by African Swine Fever in 2018. Critically, Chinese tariff exemptions on agricultural imports appear to be fundamentally market-driven, i.e., it would seem a stretch to claim US "power-based" bargaining has worked exclusively because of a trade agreement centered on VIEs.

The overall conclusion to be drawn here is that the US-China trade war has come at some cost to US consumers, taxpayers, and exporters. In addition, despite the implementation of USCTA, neither country has committed to returning tariffs back to their pre-2018 bound levels. For all intents and purposes, the United States and China have suspended their GATT/WTO obligations under GATT Article XXIII. Mattoo and Staiger (2020) argue this has significant long-run implications for the "rules-based" multilateral trading system. First, any initial advantage the United States might have gained by being the first to apply bargaining tariffs has likely been lost as China and other countries such as the EU have retaliated. This has the potential to undermine the cooperation necessary for multilateral as opposed to bilateral trade negotiations, with implications for enforcement (Maggi, 1999). Second, if the multilateral system is undermined at a time when the United States is the dominant economic power, it may prove harder for China to make credible commitments to reintroduce a "rules-based" mechanism when it eventually becomes the dominant economic power.

3. "Power-Based" Bargaining: What Has It Missed?

Despite the documented disruption and economic damage due to the US-China trade war, why did the United States put the multilateral trading system at risk through its "power-based" bargaining? Pronouncements by the previous administration on the USCTA indicate that a prime goal of the Agreement was to reduce the trade deficit with China (Bown, 2021), which would square with Matto and Staiger's (2020) rationale for US targeting of its "bargaining" tariffs. Extensive public and media focus on China's progress in meeting its import commitments under USCTA also lead to a conclusion that the Agreement was essentially about reducing the bilateral trade deficit with China – confirming the concerns Jennifer Hillman expressed in her congressional testimony (Hillman, June 8, 2018).

To be fair, while the official text of USCTA is remarkably short for a typical trade agreement, it does focus on more than expansion of trade, other chapters covering protection of intellectual property, technology transfer, non-tariff barriers to agricultural trade, financial services, exchange rates (Chapter 5), and dispute resolution (USTR, 2020). It is too early to evaluate the impact of these chapters of USCTA, but conspicuous by its absence is any mention of disciplines on SOEs and the use of subsidies. Many observers have argued China's economic model, combined with weakness in existing WTO disciplines on subsidies, has been and remains the fundamental reason for US concerns with the multilateral trading system and functioning of the WTO's Dispute Settlement Body (DSB) - see *inter alia*: Wu (2016, 2019), Bown (2019a; 2019b), Bown and Hillman (2019).

US Trade Policy Post-2001

Although the United States reduced its bound MFN tariffs on imports from China after the latter's accession to the WTO in 2001, it then switched to using other WTO-consistent border instruments, i.e., anti-dumping duties (AD) targeted at Chinese firms selling at "unfairly" low prices in the US market, complemented after 2006 with countervailing duties targeted at Chinese firms receiving subsidies (CVDs).[12] Over the period 2001-2017, the United States imposed 103 AD and 69 CVD trade restrictions on imports from China, the average duties being 151.5 and 72.4 percent, respectively. By 2017, the combination of MFN tariffs and AD resulted in an average US tariff of

[12] In 2006, the United States reversed its previous position that the Department of Commerce could not consider petitions under CVD law with respect to imports from non-market economies (NMEs) such as China.

10.4 percent being applied against imports from China, with the steel and aluminum industries being the most covered industries (Bown, 2019a).

Application of "special" protection by the United States was then significantly ratcheted up in 2018 based on US trade law(s): first, tariffs were applied to all imports of solar panels and washing machines under Section 201 of the US Trade Act of 1974 (import surges); second, tariffs were applied on all imports of steel and aluminum under Section 232 of the Trade Expansion Act of 1962 (national security); and third, tariffs were specifically targeted at $250 billion of imports from China under Section 301 of the US Trade Act of 1974.[13] In the case of steel and aluminum, growth in US imports from China had largely been slowed down through use of AD and CVD restrictions, but due to trade deflection of exports from China to third countries, and trade diversion of exports from third countries to the United States, imports from third countries had continued (Bown, 2019a). Not surprisingly, Canada, the EU and other countries retaliated by implementing their own tariffs on steel imports from countries such as Brazil and India to prevent trade deflection into their own markets.

China's Economic Model and Use of Subsidies

Imposition of tariffs by the United States reflects its and other countries' concerns about the Chinese economic model that has evolved since 2001. Key to this concern is that, while Chinese firms compete with one another, they may be subsidized relative to their foreign competition. First, SOEs in some industries face soft budget constraints (Lardy, 2019). Second, some Chinese firms are influenced either directly or indirectly by the Chinese Communist Party (CCP). Wu (2016,

[13] The US government chose implement tariffs on the grounds of national security in the case of steel and aluminum, as opposed to applying safeguard measures under Article XIX of GATT/WTO, because the former would be "non-justiciable". This was most likely due to a series of negative rulings by the AB against US use of safeguard tariffs over the period 1995-2003 (Bown, 2019b). In this context, Sykes (2003) presents a rigorous critique of both GATT/WTO rules and rulings on safeguards.

2019) characterizes this phenomenon as “China Inc.”, where intervention in the Chinese economy does not always flow through the state, the CCP functioning as a separate actor in the economy. In combination with an emphasis on market forces, the Party-state can influence economic outcomes through: controlling key sectors of the Chinese economy (aerospace, aviation, energy, transport, communications etc.); directing financial resources via large Chinese banks; guiding and coordinating government agencies and firms via Party entities such as the Central Financial and Economic Affairs Commission; facilitating coordination through informal networks in specific sectors; setting performance metrics and controlling hiring within government, SOEs, banks etc.; and, developing formal and informal linkages between the Party and private firms. The net result of “China Inc.” is that subsidies are often targeted through informal channels and not directly via the state (Wu, 2019). Third, use of export taxes, and the discriminatory rebate of value-added taxes on exports act as implicit export subsidies, e.g., export taxes on raw materials drive down their domestic price(s), providing a competitive advantage to downstream users (Garred, 2018).[14]

US concerns about the Chinese economic model have also informed debate about the impact of the China import shock prior to the financial crisis, and the subsequent shift in US politics to overt nationalism (McCorriston and Sheldon, 2020). Autor, Dorn, and Hanson (2013, 2016), and Pierce and Schott (2016), document the negative impact of increased import competition from China on the US labor market. Autor *et al*. (2020) also find that the China import shock affected polarization of voting patterns in the United States, especially districts most exposed to competition from Chinese imports. This has been rationalized by Grossman and Helpman (2021) who argue a rise in populism can be driven by a significant external event such as an import shock, which then leads to a substantive shift in a country’s trade policy towards protectionism.

[14] Garred (2018) found Chinese export policies were used as a substitute for its pre-2001 tariff structure. China eventually lost two raw material export tax cases at the WTO (February 22, 2022; August 29, 2014).

Subsidies and the GATT/WTO

From the standpoint of economic theory, production subsidies are not necessarily a distorting policy instrument if used to target some type of market failure such as under-provision of research and development (R&D) (Bown and Hillman, 2019). They are also a first-best instrument by the targeting principle, i.e., the market failure should be directly targeted at source (Bhagwati and Ramaswami, 1963; Johnson, 1965). Therefore, there is the potential that proscription of subsidies will lead to a second-best outcome if governments then use import tariffs and other policies instead (Bagwell and Staiger, 2006).

Notwithstanding economic theory, the original GATT rules provided two routes by which a country could target other countries' use of subsidies. First, if a subsidy were offered to exporters which then affected a country's import-competing producers, under GATT Article XVI, a CVD could be targeted unilaterally against the subsidized exports. Second, if the subsidy were offered to import-competing firms, under Article XXIII a country would have recourse to filing a non-violation nullification or impairment (NVNI) complaint on the grounds that the subsidy negated previous concessions on market access.[15] These latter disciplines were tightened in the Tokyo Round of GATT through the plurilateral Agreement on Interpretation and Application of Articles VI, XVI and XXIII of the GATT (the "Subsidies Code") with export subsidies deemed a *per se* violation of the rules (Bown and Hillman, 2019).[16] Finally, the Uruguay Round of GATT led to the WTO Agreement on Subsidies and Countervailing Measures (ACSM). Importantly, the Agreement defined a subsidy as a "financial contribution" from a "government or public body" that confers a "benefit" on the firm receiving it (ACSM Article 1).

[15] See Staiger and Sykes (2013, 2017) for detailed discussion of the NVNI clause of GATT/WTO.
[16] Agricultural exports were exempt from the Agreement.

From an analytical standpoint, Bagwell and Staiger (2006) argue the ACSM is too restrictive relative to the first-best rationale for production subsidies, providing an incentive for governments to use more indirect and non-transparent second-best policies. Bown and Hillman (2019) also provide detailed assessment of why the ACSM is practically ineffective, pointing out both definitional and evidentiary problems. First, China challenged US-use of CVDs against exports involving SOE support, on the grounds that these were not subsidies from a "public body". The AB subsequently ruled a "public body" means governments or government entities, thereby removing SOEs from the WTO definition of a subsidy (WTO, March 11, 2011). Second, there is a heavy burden of proof on complaining countries to show there is governmental control over an entity, and that the latter is providing a subsidy. Therefore, applying ASCM disciplines in the context of "China Inc." is likely to prove difficult. In addition, even if a challenge can be proven, the WTO is unable to issue retrospective remedies for past harm, i.e., China gets a "free pass" for breach of the ASCM before any dispute is ruled on (Wu, 2019).

Subsidies and the WTO's Appellate Body

As of December 10, 2019, the WTO's AB ceased to function after the terms of two of the remaining AB members ended, the AB requiring at least three members to hear appeals.[17] While the current legal stalemate over the future of the WTO's AB should be seen as a symptom rather than the cause of the breakdown in the dispute settlement process, the United States' dissatisfaction with the AB is certainly a function of how it believes it has been constrained by the latter in using trade remedies against China (Bown and Keynes, 2020). US concerns with the AB have been well documented, the emphasis being on it what it considers to be judicial "overreach" (Payasova,

[17] For a lengthy legal discussion of where WTO dispute settlement may go, see Pauwelyn (2019).

Hufbauer, and Schott, 2018; Pauwelyn, 2019; Chow and Sheldon, 2021).[18,19] For example, at a meeting of the WTO's DSB in 2019, the United States argued that AB rulings have,

> "…gone far beyond the text setting out WTO rules in varied areas, such as subsidies, antidumping duties, anti-subsidy duties, …, and safeguards, restricting the ability of the United States to regulate in the public interest or protect US workers and business against unfair trade practices…" (p.14, June 24, 2019).

What Can Be Done about China's Economic Model?

Given US concerns about China's economic model, and how it feels constrained by the WTO from using what it regards as legitimate trade remedies against China, it is surprising that the issue is totally invisible in the USCTA. Essentially, "power-based" bargaining in this respect has been a failure, even though it brought China to the bilateral bargaining table. Are there any alternatives?

In her Congressional testimony Jennifer Hillman (June 8, 2018) argued that the United States should form a coalition with other WTO members to put together a comprehensive case against China. Specifically, she lays out the legal reasoning for filing a case that China's trade and other measures "nullify or impair" the benefits of the US and other WTO members (GATT Article XXIII: 1(a)); in addition, she argues that an NVNI complaint can also be filed (GATT Article XXIII: 1(a)). Wu (2019) is considerably less optimistic about the merits of such an approach, specifically dismissing an NVNI complaint as having too high a burden of proof to be successful. In addition, he regards the current WTO rules as being incomplete, and therefore not well-designed to deal with "China Inc." The solution he offers is for members of the WTO to seek a new modality for updating the rules of the multilateral trading system.

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18 Pauwelyn and Pelc (2019) argue that what appears to be judicial "overreach" by the AB is in fact a problem created by excessive influence of the WTO's Secretariat in dispute settlement, notably through the drafting of panel reports.
19 Other recorded US concerns include the focus on precedent in AB rulings (the principle of *stare decisis*), and the AB giving opinions on issues not necessary for resolving a dispute (the notion of *obiter dicta*) (Pauwelyn, 2019). See Maggi and Staiger (2011) for an interesting theoretical analysis of an activist DSB.

Such updating should also include reform of AB procedures whereby issues of legal uncertainty are sent back to WTO members for further discussion and negotiation, i.e., a process of "legislative remand" through a functioning legislative body (Payasova, Hufbauer, and Schott, 2018; Bown and Keynes, 2020).

4. Summary and Conclusions

The motivation for this paper is Mattoo and Staiger's (2020) argument that US trade policy has shifted from a "rules-based" to a "power-based" approach, with a focus on the use of "bargaining" tariffs targeted at countries such as China with whom the US has a bilateral trade deficit. Superficially this strategy appears to have worked following implementation of the USCTA in early 2020, with China committing to increasing its imports over 2017 levels.

However, this is misleading, a conclusion traced out in three key sections in the paper. In the first section, a simple game-theoretic model is used to describe the notion of "power-based" bargaining, the analysis indicating that China's switch to a trigger strategy, in response to US "bargaining" tariffs, was both predictable and credible. The data on escalation of tariffs by the United States and China clearly indicate that they moved to a non-cooperative equilibrium, with bilateral tariffs moving close to levels not seen since the 1930s.

Given the United States under-estimated the willingness of China to retaliate against its unilateral increase in tariffs, the economic impact on the US economy is evaluated in the second section of the paper. The empirical research uniformly shows tariffs were fully passed through to US consumers, the key studies finding little evidence for any terms-of-trade effects. In addition, US farmers lost significant market share in China and suffered negative terms-of-trade effects due to their retaliatory tariffs, the US taxpayer bearing the cost of compensating farmers through the

MFP scheme. Negotiation of the USCTA appears to have provided relief for US agricultural exports, although rebuilding of Chinese hog production capacity accounts for much of this growth.

In the third section, the discussion focuses on the fact that China's use of subsidies was not covered by USCTA. In the context of US-China trade relations post-2001, this is quite surprising given the United States clearly feels its use of trade remedies such as AD and CVD restrictions on imports from China, have been proscribed by dispute resolution decisions at the WTO. The failure of USCTA to address subsidies also reflects a key question facing the multilateral trading system: how to deal with the Chinese economic model, given that the current trade rules were written in 1994. The only viable path to resolving this problem appears to be WTO members seeking a new modality for negotiating and updating the trade rules.

The overall conclusion of the paper is that the United States adopted a sub-optimal strategy in switching to "power-based" bargaining. Although it resulted in the negotiation and signing of the USCTA, there are multiple non-trivial *caveats*: China has credibly punished US bargaining tariffs with its own retaliatory tariffs, negatively affecting US farmers and taxpayers; US tariffs against China, remain above their bound levels with the likelihood of continued deadweight losses to the US economy; the longstanding US trade deficit has not been solved through bargaining tariffs against China, it remaining fundamentally a structural macroeconomic problem; no progress has been made on disciplining China's use of subsidies either bilaterally or multilaterally; and the continued functioning of the multilateral trading system has been placed at real risk by US actions.

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Figure 1: Tariffs and Trade Agreements