
Trade War

The Clash of Economic Systems Endangering Global Prosperity

Edited by Meredith A. Crowley



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Foreword

A trade war of unprecedented scope and magnitude currently engulfs the world's two largest economies – the US and China – and there are signs that this may spread more widely to engulf the EU.

This extremely timely eBook seeks to shed light on the origins of this economic conflict, the current impacts of the conflict on economic activity around the world, and the likely consequences for the future of globalisation. It starts from the accession of China to the WTO and then describes how China's development and economic integration has led to the world's largest trade conflict in decades. Finally, it questions whether the rules-based multilateral trading system will survive in an environment where the degree of future economic policy cooperation is very uncertain.

The authors' view is that the outlook for the future of the multilateral trading system are grim, with few potential means of achieving substantive reform. The difficult question of how to integrate the fundamentally different economic systems of Western liberal capitalism and Chinese state capitalism has no easy answers. Yet, in the middle of negotiations to resolve the US-China conflict, it is important to remember that over the last 75 years the current open and liberal multilateral trading system has delivered enormous benefits. The main question now facing policymakers is whether the multilateral trading system can be redeveloped and renewed in order to continue delivering economic prosperity.

CEPR is grateful to Dr Meredith Crowley for her editorship of this eBook. Our thanks also go to Anil Shamdasani for his excellent and swift handling of its production.

CEPR, which takes no institutional positions on economic policy matters, is delighted to provide a platform for an exchange of views on this important topic.

Tessa Ogden
Chief Executive Officer, CEPR
June 2019

Introduction

Meredith A. Crowley

University of Cambridge and CEPR

A trade war of unprecedented scope and magnitude currently engulfs the world's two largest economies – the US and China. As of mid-May 2019, US President Donald Trump has imposed import tariffs of 25% on roughly \$250 billion of Chinese goods and has initiated an administrative process to expand tariff coverage to the remaining \$300 billion of US imports from China. In the first round of the trade war, China retaliated with 25% tariffs on \$50 billion of imports from the US in July-August 2018, followed by tariffs ranging from 5% to 10% on \$60 billion of imports in September 2018. In response to the US escalation of the trade war in mid-May 2019, China has indicated that it will ratchet up its existing tariffs on US merchandise to 25% (Bown 2019).

As the US-China trade war continues, there are indications that the economic conflict could spread. The EU trade commissioner has made it clear that if the US institutes new import tariffs on autos and auto parts from the EU, it will meet them with retaliatory tariffs of its own.

This book seeks to shed light on the origins of this economic conflict, the current impacts of the conflict on economic activity around the world, and the likely consequences for the future of globalisation. It is a story in three acts, beginning with the accession of China to the World Trade Organization (WTO), tracing through the story of how China's development and economic integration through global trade led to the world's largest trade conflict in decades, and ending with questions about whether the rules-based multilateral trading system will survive and flourish or stagnate and fumble in an environment of uncertainty over future economic policy cooperation.

The origins of the US–China trade conflict

The book opens with three different perspectives on the origins of the US–China trade war. Justin Pierce and Peter Schott’s contribution examines how import competition from China contributed to geographically concentrated declines in US manufacturing employment. China’s accession to the WTO in 2001 resulted in a dramatic increase in US imports from China and a restructuring of US firms’ global supply chains into China. The transition of disemployed manufacturing workers into new jobs was slow or simply failed to occur. Ultimately, although China’s entry into the WTO created substantial welfare gains for the average American consumer by lowering prices (Amiti et al. 2017), those Americans who lost their jobs from import competition have never fully recovered. Arguably, the concentration of the costs of freer trade on these workers is behind the rise in popular support for import restrictions among certain constituencies in the US (Autor et al. 2017, Fajgelbaum et al. 2019).

But why did the US instigate a bilateral trade war to address concerns over trade with China? Why not resolve any conflicts through the WTO’s dispute settlement system? Chad Bown outlines the US’s long-standing concerns with multiple aspects of Chinese economic policy; China’s domestic industrial and technology policies, as well as the structure of Chinese state-sponsored capitalism, have spilled over into the US–China trade relationship. He explains why the current US administration believes WTO dispute settlement is not capable of resolving important points of tension in the relationship between the two countries. In bringing to light the perceived failure of WTO dispute settlement to satisfy US concerns – including a history of legal decisions against the US that did not involve China – Bown helps us to understand the motivation behind the radical decision by the US to abandon multilateral trade negotiation in favour of a bilateral trade war. At the same time, his chapter raises an important cautionary note: the rules-based WTO system has generated enormous benefits for the US over the past 75 years, and the consequences of discarding it could be severe.

Why would the US, the world’s largest and most significant economic power since the end of WWII, choose to throw away a rules-based trading system that has served its interests for decades in favour of power-based bilateral bargaining with the world’s second largest economy? Aaditya Mattoo and Robert Staiger take up this question in

a chapter that argues that long-term changes in the relative positions of the US and China in the world economy are the deep drivers behind the eruption of the US–China trade conflict. They frame the shift in US policy as the consequence of a decline in US hegemony over the global economy. In their view, a global hegemon will choose to underwrite and support a rules-based multilateral system of international economic policy cooperation that constrains its own power because the benefits of this type of open system vastly exceed the costs for a global power. However, as the hegemon’s power begins to be challenged by the rise of a major competitor, the advantages of a rules-based system wane relative to the gains that can be achieved through power-based based bilateral bargaining.

The costs of trade wars

The next four contributions quantify the economic costs of import tariffs and trade wars and discuss the uneven distribution of losses across countries, producers, and consumers. Ralph Ossa uses quantitative economic modelling to discuss which countries lose the most from trade wars of different geographical scope; Doireann Fitzgerald summarises what microeconomic studies have taught us about how firms and product-level trade flows respond to tariff changes; and Emily Blanchard discusses new research on how the spread and expansion of global value chains has increased the disruptive potential of trade wars. Finally, Yi Huang, Chen Lin, Sibó Liu, and Heiwai Tang quantify the losses to US and Chinese firms whose international global supply chains have been hit by the trade war tariffs.

Presently, it is unclear if the US-China trade war will deepen and expand to draw in more countries. How much damage to the world economy can the trade war inflict? If other countries are drawn in, what size of losses should we expect? Ralph Ossa’s chapter uses multi-country quantitative trade modelling to estimate the magnitude of the economic welfare losses associated with trade conflicts of different scopes – from a narrow purely bilateral US–China conflict to a worst-case scenario global trade war in which all countries revert to tariffs of around 60%. A key insight from Ossa’s analysis of an all-out global trade war is that the real income losses to large countries including

the US, the EU, and China of about -2% each are much smaller than the estimated damage to smaller economies such as Switzerland (-14%), Mexico (-7%), and Canada (-7%).

The aggregate effects discussed by Ossa are the cumulation of the actions of millions of firms that sell their output in foreign countries. In the next chapter, Doireann Fitzgerald reviews what is known about exporters' responses to tariffs in terms of their prices, market participation, and volume of sales. Her research on tariff liberalisations finds that Irish firms' prices were largely unresponsive to tariff changes while market participation was quite sensitive. These facts provide the background for her discussion of two recent, important studies of the immediate impact of the US–China trade war by Amity et al. (2019) and Fajgelbaum et al. (2019). Both studies find, somewhat surprisingly, the complete pass-through of US tariffs to US importers. In other words, the Chinese exporters who continued to sell their goods to the US after the tariffs were imposed did not reduce their prices to soften the blow to their customers. The research by Fajgelbaum et al. also finds a decline of more than 30% in US imports subject to these new, higher tariffs. The message from these two studies is consistent with Fitzgerald's main findings on Irish firms facing tariff changes – a reluctance to change prices in favour of changes in sales volumes or market participation.

However, these findings are surprising when viewed through the lens of the empirical literature on optimal tariffs and the international macro literature on firms' pricing responses to exchange rate movements. The empirical literature on optimal tariffs – that is, whether governments set higher tariffs on goods for which the cost of the tariff can be (at least partially) shifted onto exporters – finds that tariffs are higher (Broda et al. 2008), used more frequently (Bown and Crowley 2013), and are reduced more in trade negotiations (Bagwell and Staiger 2011) when export supply is less elastic. Extrapolating these previous studies to the current trade war would suggest that exporters in at least some sectors would reduce their prices when tariffs rise. From the international macro side, economists have long understood that price and markup adjustments to real and policy shocks occur along the international supply chain and throughout the distribution network (Corsetti and Dedola 2005). Recent work by Corsetti et al. (2018) finds that Chinese exporters of highly differentiated goods adjust their export prices and, more specifically, the destination-specific component of their

markups in order to absorb bilateral exchange rate movements so as to stabilise the prices of their merchandise in the local destination market. Related work by Berman et al. (2012) found something similar – larger, more productive French exporters adjust their markups more than less productive exporters in response to exchange rate movements. Altogether, these literatures suggest that, although the tariff costs of the US-China trade war have been entirely born by US importers to date, as the trade war persists, it is possible that export prices could begin to adjust.

The existence of global value chains (GVCs) complicates any efforts to predict which countries and firms will suffer the greatest losses or enjoy the largest benefits from a trade war that simultaneously raises the cost of imported inputs, reduces competitive pressures on import-competing firms, and restricts the foreign market access of exporters. Two contributions to this book explore how GVCs matter. Emily Blanchard examines how the calculus of determining who wins and who loses has become more complex under global value chains. Worryingly, her chapter suggests that because the trade war creates incentives for firms to restructure their supply networks, the consequences of even a short trade war could persist far into the future.

Yi Huang, Chen Lin, Sibio Liu, and Heiwai Tang use financial market data from around the time of major announcements about the trade war to construct estimates of the costs of the conflict to American and Chinese firms. Their chapter documents the abnormal stock market losses of publicly listed firms on both sides of the Pacific as well as the heterogeneity of these losses according to firms' direct and indirect reliance on trade with the other country. Following on from Blanchard's discussion of the how costs of tariffs can propagate through supply chains, they document that indirect exposure to the trade war through supply chains led to losses for US firms feeding into exports to China and reliant on a network that builds on imported parts from China.

Does the multilateral trading system have a future?

At the time of writing, it is difficult to predict the next twists and turns in the US–China conflict, but there are signals that actions taken to date will have long-term repercussions, even if the tariff war ends soon. In closing, we employ the insights of economists (Simon Evenett, Johannes Fritz, Kyle Handley, and Nuno Limao) and legal scholars (Luca Rubini and Mark Wu) to clarify the deep challenges that remain for the world trading system.

Simon Evenett and Johannes Fritz open this part by documenting what could be called the silent trade war – a steady increase in barriers to trade and restrictions on market access that have been percolating throughout the trade system over the past several years. Their analysis shows that while the hot trade war of 2018-2019 has dramatically curtailed the market access of US exporters to China and Chinese exporters to the US, this practice of reducing market access is part of a much longer trend.

Luca Rubini's chapter tackles the challenges posed by government subsidies to industry. Because the subsidy issue embodies both profound conceptual challenges, such as how to define a subsidy, and practical issues of implementation, cooperative international agreements to restrict government subsidisation are difficult to design and administer. Rubini examines the controversial history of WTO jurisprudence on subsidies and explains why this has led to a perception that the WTO's subsidy rules no longer have any legal bite. He wraps up on an optimistic note; a number of international working groups have started to explore whether new rules and practices could level the playing field.

The contribution by Kyle Handley and Nuno Limao casts a long shadow over the hopes that wounds caused by the US–China trade war could quickly heal. Their chapter explores the growing literature on trade policy uncertainty; empirical studies of Portugal's accession to the EU and China's accession to the WTO show that permanent declines in uncertainty over future trade policy spur growth in trade and investment. A worrisome corollary to these positive findings is that *increases* in global trade policy uncertainty, initiated by events including Britain's decision to leave the EU and the US' decision to raise tariffs unilaterally in violation of WTO norms, could have long-term negative impacts on trade and investment. Indeed, a study by Crowley et al. (2018)

finds that tariff scares – episodes of increased uncertainty over global tariff rates on specific products – had a chilling effect on Chinese exporters that dissuaded them from expanding their export activity to new foreign markets. The erosion of trust between the US and Chinese governments could lead to persistent economic losses even if a negotiated end to the trade war is achieved; rebuilding trust among governments and between governments and private agents will take time. Until confidence in the world trading system to deliver stable trade policy is restored, the uncertainty costs of this trade war will linger.

We close with Mark Wu’s analysis of the clash of economic systems at the heart of the US–China quarrel. Wu outlines China’s unique form of state capitalism and explains how certain aspects, such as informal networks, the Chinese Communist Party’s influence over an individual’s career progression, and implied rather than formal requirements, mean that attempts to seek redress for perceived unfair practices or episodes of government subsidisation through formal legal procedures like WTO dispute settlement are unlikely to succeed. In the absence of an effective WTO mechanism that could put pressure on China to reform certain practices, what options remain for Western countries? Until this question is addressed, restrictions on market access, import tariffs, and accusations of unfair practices are unlikely to go away.

Conclusion

The essays in this volume construct a narrative of the US–China trade war as the outgrowth of long-brewing tensions in the multilateral trading system. Multiple factors – the unprecedented economic growth of an economy operating outside the traditional Western capitalist model; new structures of production with supply chains spanning the globe; geographically concentrated job losses within the US; and a multilateral trading system that has stagnated and failed to keep pace with changes in the world economy – have all contributed to the current mess. The current problems extend well beyond the highly visible US–China conflict to the wider community of countries struggling with the interface between Chinese state capitalism and their own capitalist systems, the failure of the WTO to make progress with multilateral negotiations over almost anything, and a dispute resolution system that has veered off track.

From our current vantage point, the prospects for the future of the multilateral trading system look grim. Unfortunately, the list of potentially effective avenues for achieving substantive reform is short and will require concerted efforts and serious compromises. The difficult question of how to integrate the fundamentally different economic systems of Western liberal capitalism and Chinese state capitalism has no easy answers. Yet, in the middle of ongoing negotiations to resolve the US–China conflict, it is important to remember that the open, liberal multilateral trading system has delivered enormous benefits in its 75-year history – Ralph Ossa estimates the gains from trade amount to one-quarter of world income. The question for policymakers today is whether the multilateral trading system, which fostered tremendous economic welfare gains for so many in the past, can be redeveloped and renewed in order to continue its legacy of delivering economic prosperity into the future.

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1 The costs of US trade liberalisation with China have been acute for some workers

Justin R. Pierce and Peter K. Schott

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The past two years have seen long-simmering trade tensions between the US and China turn to action, with the US imposing tariffs on \$250 billion of Chinese goods and China responding with tariffs on \$60 billion of imports from the US. Understanding the sources of these tensions is critical for determining ways in which they can be resolved, while attempting to minimise damage to the global economy. In a series of papers, we examine the impact of US trade liberalisation with China on US industries and regions that experienced different levels of exposure to policy changes. Our findings suggest that the distributional consequences of US trade liberalisation towards China – in which negative effects like job loss were concentrated in certain industries and counties – have contributed to trade tensions between the two countries. Furthermore, our research indicates that the implementation of US trade liberalisation may have made its effects more disruptive by concentrating adjustment to the rise of China in a shorter period of time.

US trade liberalisation towards China

Our research focuses on a particular change in US trade policy towards China that occurred in October 2000, known as the US extension of permanent normal trade relations to China, or PNTR. PNTR differed from traditional trade liberalisations in that it eliminated a major source of uncertainty in US–China trade relations instead of changing the actual US tariff rates applied to Chinese goods.

Before PNTR, US imports from China faced the generally low import tariff rates available to most other US trading partners that were members of the WTO. However, because the US government classified China as a non-market economy, continued access to those low rates required annual re-approval by the president, which could be overturned by Congress. Approval of these annual renewals became much less certain after the Tiananmen Square incident in 1989 and remained so throughout periods of tension between the US and China in the 1990s. Importantly, if an annual renewal were to fail, US tariffs on most Chinese imports would have increased substantially, from 4% to 37% for the average manufacturing industry.

PNTR eliminated the need for annual renewal of China's access to low import tariff rates by making China's access to the low NTR tariff rates permanent. As a result, for US firms, PNTR improved incentives to invest in various activities that might reduce demand for labour in the US, including moving production to China, increasing sourcing from Chinese producers at the expense of US producers, and adopting various sorts of labour-saving technologies to compete with rising imports from China in terms of quality or cost. For Chinese firms, removing tariff rate uncertainty improved incentives to begin exporting or to invest in scaling up production to serve the US market.

The surprisingly swift decline of US manufacturing employment

In Pierce and Schott (2016), we find that the US extension of PNTR to China in late 2000 was associated with both a substantial increase in US imports from China and a sharp drop in US manufacturing employment between 2000 and 2003. In particular, our formal empirical analysis reveals that both the rise in imports and the decline in employment are more substantial in industries more exposed to the reduction in tariff rate uncertainty.

The sharp drop in US manufacturing employment after 2000 differs markedly from the more gradual decline in manufacturing employment that occurred during the prior two decades. Indeed, in the 21 years following the peak of US manufacturing employment in 1979 to just before PNTR, US manufacturing employment fell by 2.3 million (or 12%). In the next four years, from 2000 to 2003, it fell by 2.9 million (or 17%) – a

decline that is roughly as large as that experienced in the four years following the onset of the Great Recession.

The speed of the post-2000 decline may have exacerbated distributional losses associated with PNTR. That is, to the extent that workers displaced by a change in trade policy are able to transition quickly to employment in other sectors, their earnings losses are likely to be more limited. But if reallocation is more difficult because a large number of workers need to relocate simultaneously, the labour market shock may be more disruptive. In that case, reallocation may take longer, displaced workers' earnings may fall more dramatically, and distributional losses may be more severe.

Another interesting question that emerges from our analysis is whether the distributional losses in the US associated with China's rapid growth during the 1990s and 2000s would have been smaller if PNTR had been enacted earlier, say in the 1980s. In that case, adjustment to the increasing importance of China as an exporter of manufactured goods may have been smoother. Instead, uncertainty about China's NTR status in the 1980s and 1990s likely led to pent-up demand for integration by US and Chinese firms. That integration then occurred suddenly following passage of PNTR, likely making the adjustment process more abrupt.

Geographic concentration of the impact of trade liberalisation

Another important dimension of the employment loss after 2000 is its uneven geographic distribution. US counties with larger shares of employment in industries where the elimination of tariff rate uncertainty was more binding faced larger employment losses. Exposure to PNTR varied substantially across the US, and was particularly high in the southeast. As with the rapidity of the employment decline, this spatial concentration may have magnified distributional losses by making it harder for workers located in the most exposed areas to find alternate employment in a nearby county.

A growing body of research finds that those regions that were more exposed to import competition have experienced negative outcomes beyond employment. Autor et al. (2013), for example, show that regions experiencing greater import competition from China exhibit declining labour force participation as well as increased take-up of

social welfare benefits such as disability. Other researchers have found links between exposure to Chinese imports and relative increases in crime (Che and Xu 2015), relative increases in household debt (Barrot et al. 2016), relative declines in the provision of public goods (Feler and Senses 2016) and relative declines in marriage rates (Autor et al. 2018).

These consequences also carry over to health. An influential recent paper by Case and Deaton (2015), for example, documents a striking increase in ‘deaths of despair’ – from suicide, drug poisonings or alcohol-related liver disease – among middle-aged whites in the US. In our own research (Pierce and Schott 2018), we find that counties’ exposure to PNTR is associated with long-lasting relative increases in these deaths of despair – especially from drug overdoses – and that these increases are concentrated among working-age whites, especially white males.

Moving forward

Although our research has focused on the distributional consequences of trade, particularly for industries and regions more exposed to import competition, it is important to keep in mind that trade liberalisation with China has been found to benefit the US as a whole (Amiti et al. 2017, Handley and Limao 2017). Some of these benefits occur as the US economy’s resources are reallocated toward comparative advantage sectors. Fort et al. (2018), for example, show that over the long term, firms have increased employment in their non-manufacturing establishments even as they shrink manufacturing employment. Within the manufacturing sector, real value added has continued to increase over time, despite declining employment, indicating a substantial increase in aggregate labour productivity.

Nonetheless, the research described above highlights the importance of considering the distributional effects of trade, along with its broader benefits. Understanding how those most exposed to trade competition are affected is important in its own right, but also because failure to address the distributional consequences of trade can erode support for welfare-augmenting trade policies. Indeed, Feigenbaum and Hall (2015), Che et al. (2017), and Autor et al. (2017) have found that areas experiencing increases in import competition have exhibited anti-trade responses in voting by individuals and legislators, along with increased political polarisation.

A challenge for policymakers, of course, is to determine how the benefits of international trade can be broadly shared throughout the economy. Though it is common for trade economists to promote education as the solution to this problem, development of appropriate policy responses along this line is hampered by a lack of research into the specific frictions workers face in moving between industries and regions. An apparel worker displaced by trade liberalisation in the southeastern US, for example, might have sought employment in the growing oil and gas industry in Wyoming, but the data suggest that such movements are relatively rare. Is this lack of movement due to an information asymmetry, i.e. workers in the southeast do not know of job opportunities in other industries in other parts of the country? Or do displaced workers in the southeast know about these opportunities, but face credit constraints hampering their ability to finance a move or to acquire the skills needed to make the transition?

Finding answers to these questions is particularly important given that labour market shocks can come not only from trade, but also from the adoption of labour-saving technologies such as industrial robots. Investing in research now to learn more about how to address these types of shocks should be an important goal for both economists and policymakers.

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2 The 2018 trade war and the end of dispute settlement as we knew it

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Future scholars may someday ask: Did the 2018 trade war cause the end of dispute settlement under the WTO? Or was it the failures of dispute settlement that caused the trade war?

For more than 20 years, the WTO's dispute settlement system provided an orderly process for countries to resolve trade grievances and keep cooperation going.² But in 2018, something broke down.

In this chapter I explore why the inability to resolve underlying problems with the WTO itself deserves some of the blame. The main goal is to arrive at some potential lessons for a future system of dispute settlement.

The US deliberately pushed the WTO to the brink

Before turning to a critique of the WTO, I begin with the conventional wisdom. The US provoked a crisis in 2018 with three precisely targeted policy decisions that expertly poked holes in some of the WTO's weakest spots.

1 Thanks to Bernard Hockman, Petros Mavroidis, Robert Staiger, and Mark Wu for comments. All remaining errors are my own.

2 Mavroidis (2016) explains the WTO dispute settlement process. Economic surveys of dispute settlement include Park (2016) as well as Bagwell et al. (2016: 1206-1218).

First, it imposed new tariffs – which it claimed would not be subject to international review – on nearly \$50 billion of steel and aluminium imports. Formally, the US excused its new tariffs by triggering the WTO’s national security exception. The US administration has argued this exception is “self-judging” or “non-justiciable”, meaning that it cannot be questioned or benchmarked against externally verifiable economic evidence, unlike other opt-outs like antidumping or safeguards.³ But denying any outside check could lead to copycat behaviour and a protectionist spiral in which countries ignore even the most basic rules that limit tariffs. The result could be systemic failure.

Second, the US retaliated against another WTO member without first going through the formal dispute resolution process. Its tariffs on \$250 billion of imports from China came after completing only an internal investigation. WTO rules require a country first win a dispute that requests the partner change its policies. The US could only be authorised to retaliate if China then refused to comply, and even then, the retaliation would be subject to WTO limits.

Third, the US initiated a procedure that could end the WTO’s system of resolving disputes. Countries currently have the right to appeal to the WTO’s standing Appellate Body (AB) if they disagree with a preliminary ruling. But the United States has refused to allow the appointment of new AB members as old members’ terms expire. By December 2019, the AB may not have enough members to issue rulings to appeals.⁴ But if no rulings are issuable, a forward-looking defendant country could simply trigger an appeal, put the legal case into permanent limbo, and eliminate the WTO’s ability to authorise tariff retaliation against countries that fail to comply.

3 For a discussion of the historical origins of the national security exception, see Pinchis-Paulsen (2019) and Bown and Keynes (2019).

4 While the Trump administration has created a crisis by blocking all appointments, the Obama administration had already signalled discontent with the AB by blocking specific nominees and relying on some of the arguments below.

Scholars have articulated the extraordinary economic and long-run institutional costs of these and other US policy actions taken in 2017-2018.⁵ Those costs are of first-order importance but will not be repeated here.

Instead, the next sections explore the political-economic concerns with the WTO that may have contributed to these US actions.

China's subsidies demanded US intervention of some form

The US imposed national security tariffs in part because of China's state-driven economic model. In sectors like steel and aluminium, for example, China's expansion increased from under 20% to over 50% of global production between 2002 and 2017. Yet, even as China's domestic demand began to slow, production and its already formidable exports continued to increase.

China's subsidies and exports exacerbated three external concerns. Its potential global domination was worrisome on anti-competitiveness grounds because of its history of abusing international market power once acquired.⁶ Furthermore, US policymakers have become more sensitive to the fact that technology- and trade-induced shocks impose larger-than-expected adjustment costs on domestic communities and labour markets, and that the Chinese system may push 'its share' of those costs onto others (Autor et al. 2016).⁷ Finally, China got caught in US domestic politics. Steel and aluminium firms are geographically concentrated in American swing states, and US policymakers are historically responsive to their economic interests. And the industries'

5 This includes the author elsewhere (see, for example, the collection in Bown and Kolb 2019). Fajgelbaum et al. (2019) and Amiti et al. (2019) provide model-based estimates of the economic costs of the 2018 tariffs. The Trump administration's focus on trade deficits seems to drive its view that trade agreements have been unfair to the US. Finally, other costly US trade policies in 2017-2018 include withdrawal from the Trans-Pacific Partnership agreement, renegotiation of the Korea-US and North American Free Trade Agreements, and its potential new trade restrictions on automobiles.

6 The US and other countries won two WTO disputes over China's illegal export restrictions on raw materials and rare earth metals that had constrained foreign access to critical inputs used in advanced manufacturing.

7 Of course, US spending on active labour market policies – a more efficient approach to facilitating adjustment – is also low relative to peer countries (Bown and Freund 2019).

older, mostly male workers may be part of the other recent US narrative over identity politics (Grossman and Helpman 2018).

US national security tariffs arose because others wouldn't work or had been ruled illegal by the WTO

Other US policy options had been taken off the table for a combination of reasons.

The US had already emptied some of the WTO toolbox, but to little economic effect. Its use of antidumping tariffs had mostly stopped steel and aluminium imports directly entering from China. But China's exports to third countries continued to rise – as did US imports from third countries – likely due to trade diversion and potentially trade deflection.

But second, the US was unwilling to deploy a nondiscriminatory safeguard tariff – instead of a national security tariff – because earlier attempts had been thwarted by the WTO itself. The AB issued a series of legal rulings condemning US safeguards imposed over 1995-2003, including a 2002 US safeguard on steel.⁸

The US was also concerned a WTO dispute was too risky and potentially unwinnable

The US ruled out a formal dispute to stop Chinese subsidies, the first-best result, out of concern that the WTO was not well-equipped to constrain Chinese-style subsidisation.⁹ WTO subsidy disciplines can easily capture transparent, direct payments from a

8 While the US imposed safeguards on solar panels and washing machines in 2018, indicating the constraint was nonbinding, the US government was forced to act because those cases were initiated by domestic industry. The last time the US government self-initiated a safeguard investigation was 2002, which resulted in the steel tariffs rebuked by the AB (Sykes 2003).

9 The Obama administration filed a WTO dispute against China's aluminium subsidies at the very end of 2016 that the Trump administration decided not to pursue. The US had pushed for a multilateral, OECD forum to address global (Chinese) steel overcapacity, but that also made little progress. A final argument against formal dispute settlement is the length of the process. Horn et al. (2011) find that, on average, three years elapse between the initiation of the dispute, the issuances of the panel and Appellate Body report, and the outcome.

government agency to firms. But Chinese subsidies are different and often stem from a nuanced and complex combination of policies.

A recent OECD (2019) study of the downstream (finished) aluminium industry is illustrative. Its first key point is that primary aluminium is estimated to make up 75-86% of the cost of downstream products, and primary aluminium has benefited from highly subsidised Chinese coal. But second, China also imposed export restrictions on primary aluminium, implicitly subsidising Chinese downstream firms relative to their foreign competitors. China also rebated value-added taxes to exporters of downstream products without doing the same to primary producers.

The combined result was a heavily subsidised downstream, refined aluminium industry. But it is also one that the WTO legal system would have found challenging to address.¹⁰

The US imposed unilateral tariffs because that type of WTO dispute was also unwinnable

The idea that WTO dispute settlement was not well-positioned to tackle a suite of Chinese policies whose economic effect was to act against the spirit – if not the legal letter – of WTO rules applies similarly to the US unilateral tariffs on \$250 billion of imports.

The US economic argument was that China maintained high tariffs – for example, on automobiles – that contributed to foreign firms needing to access the Chinese market through foreign direct investment in lieu of exports. But investment, combined with China's joint venture requirements and other regulatory barriers, created greater possibilities for the forcible transfer of foreign technology, industrial espionage, and theft of intellectual property (USTR 2018). Again, because it was a combination of Chinese policies – some, such as high-Chinese tariffs, that were not WTO-inconsistent when viewed in isolation – a WTO dispute seemed unable to solve the problem (see also Wu 2016).

¹⁰ In a related dispute, Crowley and Hillman (2018) discuss how the AB found against the EU's anti-subsidy tariffs despite Argentine export restrictions for soybeans resulting in a subsidy to Argentina's downstream, processed soybean products.

However, one important counter-argument – and that the US gave up on formal dispute settlement prematurely – is that it failed to appeal to the WTO’s non-violation nullification and impairment (NVNI) clause (Staiger and Sykes 2013). Loosely interpreted, NVNI is a legal provision by which the WTO could find China guilty of harming US trading interests even without having broken any explicit WTO rules. Nevertheless, there have been few attempts to use such an argument. With respect to China, it would also require that the AB grapple with economic models in order to assess how complex policy interactions taking place in a non-market economy adversely impact US economic activity. It is not as straightforward as asking the AB whether one Chinese policy crossed some red line.

It also would have been philosophically inconsistent for the US to ask the WTO to find another country guilty even though it hadn’t broken any explicit rules. The current US administration has argued repeatedly against any WTO attempts to encroach on national sovereignty.

The Appellate Body needs a reboot because it had gone astray

Much of the US action that could eliminate the Appellate Body was based on the concern that the WTO has engaged in judicial overreach. The argument is that the AB imposed obligations on the US and other countries that had never been agreed through 70 years of GATT or WTO negotiations.¹¹

As noted, one example involved a series of rulings against US use of safeguards. In another backward-looking example, the US became frustrated that it lost dozens of WTO decisions over ‘zeroing’, or an approach to calculating antidumping tariffs. It has argued these rulings overly constrained the US ability to address unfair trade (Bown and Prusa 2011).

11 Payosova et al. (2018) describe these and other procedural concerns with the dispute settlement process. Maggi and Staiger (2011) examine the issue of judicial overreach by modelling WTO dispute settlement as potentially completing an incomplete contract.

Other, forward-looking US worries involve China. In ongoing cases over China's non-market economy status, the AB could further limit how the US deploys its antidumping tariffs. In other disputes, the AB may decide that Chinese state-owned firms are not a 'public body' and thus do not count as being a subsidy provider, limiting US use of countervailing duties.

The US view is that it was the AB's own rulings that created the need for someone to step in. And the problems couldn't be fixed without a crisis, because with the Doha Round of negotiations stuck, the WTO lacks a rules-making function to legislate corrections when the AB either makes a legal error or crosses a politically sensitive red line.

To make its point, the US did two things. It imposed policies (national security tariffs and tariffs on China) that were even more problematic than the ones ruled illegal in the past. It also threatened the existence of the WTO dispute settlement system that had decided that those earlier policies were illegal.

Dispute settlement may be going back to the GATT

Dispute settlement was not always this legalistic. Under the General Agreement on Tariffs and Trade (GATT), the WTO's predecessor from 1947-1994, disputes were typically resolved quite differently.

The key GATT distinction was that countries could veto the dispute at any stage. This included a veto from the defendant before the dispute began or right before adoption of a legal ruling. Because the resulting legal process was uncertain, disputes were addressed through negotiation or not at all. And it was also a system that benefited those with power. As the current US Trade Representative, Robert Lighthizer, has expressed an affinity for the GATT system (Lighthizer 2017), that may be where things are headed.

Ironically it was the US that became increasingly frustrated with the GATT's ineffectiveness in the 1980s. It turned to the "aggressively unilateral" Section 301 – the same law used to impose tariffs on China in 2018 – and demanded partners provide additional access for US exporters or face tariffs. Growing concerns with US unilateralism at the time helped lead to the Uruguay Round agreement and the creation

of the WTO dispute settlement system.¹² And over the ensuing 25 years, no countries could block the process of dispute resolution, and the WTO could authorise retaliation if countries were found not to comply with the rules. And critically important, it was rare for a dispute to ever reach the stage of retaliation before being resolved.

The other main problem with the GATT is that there was a lot more protectionism, much of it through “voluntary” export restraints (Hoekman and Kostecki 2009, Bown 2019). And while no major trade wars may have erupted, the GATT was never forced to confront today’s trade tensions between market-oriented and state-driven economies.

WTO dispute settlement is not gone yet, nor is the 2018 trade war. But if either goes, any evaluation of the effectiveness of the US strategy will also require a thorough assessment of the new dispute settlement system that replaces it. And that will require grappling with what the WTO system provided, warts and all.

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3 Understanding trade wars

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A popular view among economists is that recent US trade actions defy economic logic, because these actions seem to link gains from trade to bilateral trade imbalances and treat trade as a zero-sum game. According to this view, these actions are undesirable because they will lead to higher tariffs; that could happen either by design or, if the tariffs are a ploy to induce liberalisation abroad, because the ploy will fail and the higher ‘bargaining tariffs’ will remain. And it follows from this view that, in the event that the trade wars do lead to negotiated outcomes that result in more open markets, these tactics must be regarded as a success.

We describe here an interpretation of current US trade actions that is at once more charitable and less forgiving.² More charitable, because according to our interpretation it is possible to see a logic to these actions: the US is initiating a change from ‘rules-based’ to ‘power-based’ tariff bargaining and is selecting countries with which it runs bilateral trade deficits as suitable targets of its bargaining tariffs. Less forgiving, because the costs of these trade tactics cannot be avoided even if they happen to deliver lower tariffs. Rather the main costs will arise from the use of the tactics themselves, and from the damage done to the rules-based multilateral trading system.

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2 In Mattoo and Staiger (2019), we develop this interpretation more fully.

Trade wars and the rules-based multilateral trading system

The most-favoured nation (MFN) principle and reciprocity are two pillars of the General Agreement on Tariffs and Trade (GATT)/WTO rules-based multilateral trading system. MFN embodies the nondiscrimination principle: imports of the same product from different countries have the right to face the same (MFN) treatment in a given market. Reciprocity refers to the notion that bargains should be balanced: due to the agreed tariff liberalisation, each country can anticipate an increase in the volume of its exports that is roughly equivalent in value to the increase in the volume of its imports.

These rules constrain the exercise of power in tariff bargaining (Jackson 1989). MFN dilutes the ability of a powerful country to capture the gains from pressuring bargaining partners to lower their tariffs, because any gains will be shared as well by third-country exporters. And reciprocity serves to further neutralise the exercise of power in tariff bargains, because it establishes an expectation of balanced terms for the bargain.³

Recent US trade actions can be seen as an attempt to escape from these constraints, an attempt that is made clear in the following statement by Wilbur Ross, US Secretary of Commerce:

An ideal global trading system would facilitate adoption of the lowest possible level of tariffs. In this ideal system, countries with the lowest tariffs would apply reciprocal tariffs to those with the highest and then automatically lower that reciprocal tariff as the other country lowers theirs. This leveling technique could be applied product by product or across the board on an aggregated basis. Such a modification would motivate high-tariff countries to reduce their tariffs on imports. (Ross 2017)

The system envisaged by Secretary Ross would abandon MFN and introduce an unprecedented notion of reciprocity – in tariff *levels* rather than in negotiated tariff *changes*. It would repeal the rules-based multilateral trading system and replace it with

³ Bagwell and Staiger (1999) show that when applied together and strictly enforced, MFN and reciprocity can induce bargaining outcomes that are completely independent of the relative bargaining power of the negotiating parties.

something more like a power-based system where countries are no longer constrained by the old agreed-upon rules of behaviour.

The meaning of recent US trade actions: Bargaining tariffs

We interpret recent US trade actions as reflecting a strategy of bargaining tariffs, whereby US tariffs are increased above the levels to which the US has committed in existing trade agreements with the goal of inducing US trading partners to reduce their tariffs. That raises the question of why bargaining tariffs are needed to achieve this goal, when they were not needed to bring bargaining partners to the table over the past 70 years of successful GATT/WTO liberalisation. We suggest two answers.

First, the threat of bargaining tariffs is needed to spur MFN negotiations between the US and other industrialised countries such as Japan and the EU (and preferential tariff bargaining with countries such as Canada, Mexico, and South Korea), because reciprocal tariff bargaining has largely run its course with these countries and most of the positive-sum gains from reciprocal tariff liberalisation have already been achieved by earlier trade agreements. Given this, any further tariff negotiation beyond the tariff commitments already made in those agreements amounts to a reallocation among countries of the existing spoils from globalisation – in effect, a zero-sum game. And the threat of bargaining tariffs *is* needed to induce a (zero-sum) reallocation of these spoils.

Second, large developing countries such as Brazil, China, and India were mostly inactive during earlier episodes of reciprocal liberalisation but have now grown to a size where their markets and protection matters. This has created a ‘latecomer’s problem’: positive-sum gains from reciprocal tariff liberalisation are likely available for these countries, but industrialised countries now have low levels of protection and little to offer these countries in reciprocal bargains. Here again, given existing US tariff commitments, the threat of bargaining tariffs is needed to induce these countries to reduce their tariffs.⁴

4 Bagwell and Staiger (2014) define the latecomer’s problem. They also describe a possible approach under which GATT Article XXVIII renegotiations could be used in the context of the Doha Round to achieve bargaining tariffs against latecomers while maintaining MFN and reciprocity. The difference is that the approach to the latecomer’s problem that they describe would stay within the rules-based system and hence not allow the exercise of US bargaining power. Beyond the latecomer’s problem, there are also unique trade policy issues raised by the nature of China’s economy.

But why choose as targets of its bargaining tariffs countries with which the US runs large bilateral trade deficits? A possible reason is that US bargaining tariffs can succeed in rebalancing the terms of existing trade agreements in favour of the US only if its bargaining partners cannot muster as strong a tariff threat of their own. Bilateral trade imbalances can serve as a possible metric for identifying ‘weaker’ countries where US bargaining tariffs could have the intended effect.

Hence, rather than interpreting recent US trade actions as reflecting the view that (i) trade is a zero-sum game, and that (ii) bilateral trade deficits signify trading partners with whom the US loses from trade, we can interpret these actions as arising from a view that (i) *negotiating further trade agreements* is a zero-sum game (or subject to the latecomer’s problem), and that (ii) bilateral trade deficits signify trading partners with whom *US bargaining tariffs create the strongest threat point*.

Hegemonic transition: The fall (and rise) of the rules-based multilateral system

Above we have argued that the US is initiating a change from rules-based to power-based tariff bargaining. But why is this transition happening now? In 1947, the US was the unquestioned hegemon of the world economy and played a central role in the creation of the GATT (Irwin et al. 2011). Below we describe how it can be in the enlightened self-interest of a sufficiently dominant hegemon to provide support for a rules-based system that limits its ability to exercise power; but as the dominance of the hegemon wanes, this support can erode, precipitating the collapse of the rules-based system until another sufficiently dominant hegemon rises to take its place.

Imagine a hypothetical four-stage hegemonic transition between two countries, which for purposes of illustration we refer to as the US and China. This transition begins with a phase of US hegemony, after which relatively faster growth in China causes the relative power positions of the two countries to evolve through a phase of US dominance, then Chinese dominance, and finally to Chinese hegemony.

To understand the equilibrium regime under US hegemony (and, by symmetry, in Chinese hegemony), recall from earlier that a commitment to MFN and reciprocity dilutes the exercise of power. Of course, this commitment benefits the weak, but

paradoxically it can also be valuable for powerful countries when they are at their most powerful. This is because as hegemon, such countries need to find some way to commit not to exploit the weak ex post, once the bargaining has begun and the latter are trapped by relationship-specific sunk costs or become vulnerable to exclusion from trade deals between the hegemon and other weak countries. Absent such a commitment, the weak might simply stay away from the bargaining table, depriving the strong of any gains from trade bargaining. By restraining the strong, the rules-based system encourages participation of a broader set of countries in the global economy, benefiting the weak and the most powerful countries alike (Bagwell and Staiger 1999, Bagwell et al. 2018, Goldstein and Gowa 2002, McLaren 1997).

Therefore, in the US hegemony phase, the US chooses to tie its hands in a rules-based regime in order to ensure the participation of the weak (China before its rapid growth phase). During the US dominance phase, China would like to continue to threaten not to bargain with the US in the absence of rules, but unlike in the US hegemony phase this threat is not credible, and hence the US does not need to rely on rules to induce China's participation. For this reason, in the US dominance phase the US does better in a power-based regime than a rules-based regime and chooses to escape from its constraints. The remaining phases are then mirror images of the first two phases just described. In the Chinese dominance phase, China now does better in a power-based regime than a rules-based regime and chooses not to support a rules-based regime. And finally, in the Chinese hegemony phase, China chooses to tie its hands in a rules-based regime.

The duration of the phases will depend on the policy choices of the countries to the extent that those policy choices determine their relative growth rates. Suggestive of the pro-active industrial policies adopted under the China 2025 programme, China clearly has an incentive to accelerate the transition from US dominance to Chinese dominance. By the same logic, the US has an incentive to prevent, or at least delay, the transition, suggesting an added rationale for the trade and investment restrictions it is imposing on China.

The cost of trade wars: Losing the benefits of the rules-based system

The rationale provided in the previous two sections for recent US trade actions relies on a myopic logic, even from a purely US perspective. Apart from MFN and reciprocity, reputation and norms of cooperation also matter in the rules-based system. The recent US trade actions have adversely affected these features and may cause irreversible damage to the system in a way that would also hurt longer-term US interests.

Above, we focused on the possibility that a country would deviate from a prior agreement and use bargaining tariffs against a ‘weaker’ trading partner with which it runs a bilateral trade deficit. But it may then become acceptable for its other bargaining partners to resort to the same strategy. And if this happens, any initial bargaining advantage the country enjoys from being the first to exploit this strategy would quickly disappear. In fact, it may be hard to maintain any cooperation at all because of the multilateral enforcement issues that arise in this setting (Maggi 1999).

The hegemonic transition described in the previous section assumed that China’s optimal actions when it becomes the hegemon were completely independent of US actions today. But by breaking rules today, the US could damage the reputation of the multilateral trading system and hence deprive a future hegemon of a commitment mechanism. The resulting period of Chinese hegemony without the benefit of an effective rules-based system could be costly for the US.

Undermining the central WTO rules could be costly in other ways. MFN and reciprocity can mitigate both the strategic behaviour and the bargaining frictions that can accompany such behaviour (Curzon 1966, Schwartz and Sykes 1997, Bagwell and Staiger 2005, 2010, 2016, 2018, Bagwell et al. 2018, 2019). By contrast, there is ample historical evidence that the use of bargaining tariffs leads to outcomes far away from those that might be considered desirable or efficient. The disappointing European experience with bargaining tariffs during the second half of the 19th century has been documented by Wallace (1933: 630).

Conclusion: The enlightened self-interest of a declining hegemon

The US may be resorting to bargaining tariffs to extract more of the gains from cooperation with other relatively open industrial countries, and to induce greater liberalisation in relatively protected large developing countries. In parallel, the declining relative importance of the US in the world economy may have diminished the need to reassure trading partners by committing to a rules-based system, and increased the incentive to delay hegemonic transition.

However, a less myopic view would dictate greater US restraint. If other countries follow the example of the US, then the US will likely lose any benefits from its actions, and multilateral trade cooperation will collapse. If US actions durably damage the rules-based system, the US may ultimately be hurt by the absence of restraints on the actions of a future hegemon.

The US may also be better off with rules-based trade bargaining in the period of Chinese hegemony than with power-based trade bargaining in the period of Chinese dominance. This has a surprising implication: if the transition from US to Chinese dominance cannot be avoided, then the US might be better off facilitating China's rise, through the phase of Chinese dominance and to the phase of Chinese hegemony. This course of action could reflect the enlightened self-interest of the US while at the same time averting the conflicts that have tended to arise between incumbent and rising powers.

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4 The costs of a trade war

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The established world trading system, based on the rules of what is now the WTO, has long been remarkably successful at promoting trade policy cooperation. Over the past 75 years, it has produced and secured extensive trade liberalisation, thereby facilitating today's unprecedented international economic integration. During this process, it navigated even major challenges such as the Great Recession following the 2008 financial crisis, and therefore appeared well equipped to prevent countries from reverting to large-scale protectionist policies.

This assessment has to be revised entirely following the radical shift in US trade policy under President Trump. The most visible policy change is probably the trade war between the US and China, in which the US is now imposing special tariffs on over half of Chinese bilateral exports (Bown and Zhang 2019). But there has really been a whole battery of revisionist trade policy measures, including the withdrawal from the Trans-Pacific Partnership (TPP), the imposition of special tariffs on steel and aluminium imports, the replacement of the North American Free Trade Agreement (NAFTA), the announcement to consider special tariffs on EU auto imports, and even the threat to exit the WTO.

This unexpected attack on trade policy cooperation has brought new relevance to understanding the darker scenarios of trade policy. Will the US further increase its tariffs against China? And does it have any incentives to also instigate trade wars with its NAFTA partners or the EU? How large are the economic costs of a trade war? And which countries are most vulnerable to the disruptions in trade flows it brings about?

In this chapter, I briefly comment on such scenarios based on the recent quantitative trade policy literature. In doing so, I draw heavily on two of my own research articles but also provide some original analysis.

Gains from trade

I begin by summarising what I know about the gains from trade, since these gains are directly related to the costs of a trade war. After all, if trade itself is not an important contributor to our prosperity, a disruption in trade can hardly cause much economic harm. And there is much confusion about the size of the gains from trade even among trade economists, with the most important misconception being that they are small.

My best guess is that the gains from trade account for one-quarter of worldwide real income, in the sense that worldwide real income would be one-quarter lower if there were no international trade (Ossa 2015). This estimate is derived from a standard quantitative trade model with input-output linkages calibrated to 50 regions and 252 industries encompassing the entire world economy. This aggregate number masks a lot of cross-country heterogeneity, driven mainly by the tendency of smaller countries to have larger gains from trade. For example, while the gains from trade account for only around one-tenth of US real income, they already account for around half of Swiss real income.

This best guess is much higher than previous estimates merely because my analysis encompasses a much larger range of industries. This simple extension makes a big difference since the gains from trade are ultimately driven by ‘critical’ industries. For example, having access to imported raw materials is absolutely crucial for countries that are poorly endowed with natural resources. Similarly, having access to foreign pharmaceuticals is absolutely crucial for countries that lack the capacity to produce their own. Simple examples like this make clear that the gains from trade must be substantial – everything else is just grossly implausible in my mind.

The assessment that trade matters is reinforced if one remembers why there are gains from trade. Fundamentally, gains from trade are just gains from the division of labour. And it should be self-evident to every reader that the division of labour is a fundamental pillar of our prosperity – imagine what would happen if each of us had to produce everything we consume ourselves! So, just like individuals gain from the exchange with other individuals, countries also gain from the exchange with other countries, since the gains from the division of labour do not stop at international borders.

Costs of a trade war

Against this background, we can now discuss the various trade war scenarios mentioned above. In all of this, it is important to keep in mind that the gains from trade are an upper bound to the costs of any trade war since autarky is always the worst-case scenario.

Let us turn first to the scenario of a full-fledged trade war. Trade wars are usually interpreted as prisoner's dilemmas, that is, harmful outcomes brought about by individually rational behaviour (Bagwell and Staiger 2002). While there are gains from trade, countries still have incentives to unilaterally impose import tariffs since this allows them to benefit at other countries' expense. A trade war arises when all countries simultaneously engage in such beggar-thy-neighbour policies and tariffs rise everywhere.

In recent work, I estimate that countries would impose tariffs of almost 60% in a fully escalated trade war in an attempt to manipulate world prices in their favour and shift profits towards their firms (Ossa 2014). I also estimate that such a trade war would be very costly in the sense that it would wipe out around one-quarter of the gains from trade. Applied to the current trade war between the US and China, this suggests that there is still substantial room for escalation. So far, the US has threatened tariffs of 25% should China not make major concessions, which is still well below the 60% ceiling my analysis implies.

Building on this work, I have now performed a number of new simulations in order to be able to better comment on current events. The main innovation is that I now consider a larger sample of countries (20 instead of 7) so that I am not restricted to looking only at the main trading blocs. To keep the analysis manageable, I do not solve again for the best-response (Nash) tariffs but simply consider the effects of exogenously raising tariffs to 60% for some or all country pairs. As a sensitivity check, I have also considered 30% tariffs, which turned out to approximately halve all welfare effects. A number of interesting findings emerge from this analysis.

First, the welfare effects of a fully escalated worldwide trade war are very heterogeneous, just as one would expect. The big players such as China, the EU, and the US would see real income losses of around -2%, which is significant but hardly an economic

catastrophe. But things look much worse for small open economies such as Switzerland, which would see its real income fall by -14%. Even Canada or Mexico would be hit hard by such a trade war, suffering real income losses of around -7%.

Second, a fully escalated bilateral trade war between the US and China would only imply modest welfare losses for both economies. According to my calculations, US real income would fall by -0.4% and Chinese real income by -0.7%, so that China appears to be more vulnerable in this regard.

Third, instigating a US–EU trade war in addition to a US–China trade war would benefit China and harm the US. In particular, China’s real income losses would fall to -0.6% while the US real income losses would triple to -1.2%. Against this background, one would expect the US to think twice before following up on threats to tax EU auto exports, since such a move would contain significant risks.

Fourth, if the US were to engage in a trade war with China, the EU, and its NAFTA partners, its losses would amount to almost three-quarters of the losses from a worldwide trade war (-1.7% versus -2.3%). This implies that the US has already picked fights with its most significant trading partners, which underlines how aggressive its trade policy realignment has been.

An important caveat to all these calculations is that they are based on a long-run model, which abstracts from adjustment costs. As a result, I would expect the short-run losses from trade wars to be even larger, given that it takes firms time to rearrange supply chains and workers time to identify new employment opportunities. However, I am not aware of any thorough analysis of the short-term effects of trade wars, so this is mere speculation at this point.

Conclusion

An important implication of these calculations is that countries have a shared interest in trade policy cooperation. Engaging in trade wars is harmful for all participating countries and this harm will ultimately be felt by their citizens. This basic point raises hope that the current trade policy crisis is temporary and trade policy cooperation will again become the norm.

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5 How exporters respond to tariff changes

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Since January 2018, the US has been engaged in a trade war with China, and has imposed tariffs on iron and steel affecting many trading partners. It is possible that the trade war with China may escalate, and further trade policy actions against other countries have also been floated. If taken, these actions would lead to retaliation. So, this seems like a good time to sum up what we know about how exporters respond to tariff increases and how, as a result, a trade war might affect the US from both an importing and an exporting perspective.

Tariffs drive a wedge between the prices charged by exporters and the price that purchasers must pay in order to import. How much import prices rise when tariffs rise depends on whether exporters are prepared to reduce their prices and markups to bear some of the incidence of the tariff. The combined evidence from trade liberalisations and episodes of tariff increases (discussed below) suggests that when a country raises its import tariffs, foreign firms do not adjust prices or markups to offset the tariff. As a result, the price of imports rises one-for-one with the tariff change. Larger and more productive foreign firms continue to export to the affected market, but because buyers face higher prices, they demand less, and continuing exporters see their sales fall. Meanwhile, in the face of this effective reduction in demand, some marginal foreign firms stop exporting and others never start, when, in a counterfactual world without the tariff increase, they would have done so. As a result, the quantity and variety of imports falls.

Within the country that raises tariffs, unproductive import-competing firms are less likely to exit than under lower tariffs. This is at least partly due to their ability to charge

customers higher prices in an environment where import prices rise. But if trading partners retaliate by raising their tariffs, domestic exporters are hurt. Since even marginal exporters are likely to be more productive than the least productive import-competing firms, this implies a shift of resources away from productive towards unproductive firms.

Where does the evidence come from?

Because the postwar period has seen mostly trade liberalisations, most of the evidence on exporter responses to tariff changes is based on trade liberalisations rather than tariff increases. Liberalisations tend to be multilateral and affect many trading partners, whereas episodes of tariff increases tend to be unilateral and directed at only one or two countries. Some economic theories suggest that firms might respond differently to tariff increases and decreases, but the available evidence suggests that exporters respond symmetrically to both, and that their responses to multilateral and unilateral tariff changes do not differ measurably.

Evidence from MFN tariff reductions

In two recent papers (Fitzgerald and Haller 2018, Fitzgerald et al. 2019), my co-authors and I look at how Irish firms responded to changes in tariffs over the period 1996-2009. These tariff changes were principally due to reductions in most-favoured nation (MFN) tariffs offered by countries such as the US, Japan, Australia, Canada, and New Zealand to all WTO members, including Ireland. These reductions were agreed under the Uruguay Round of the GATT, which was signed in 1994 and then gradually phased in over the following ten years. We focus on the impact of these tariff changes on export activity. We control for the effect of changes in exporters' production costs by comparing what happened to a firm's exports to markets where tariffs changed with what happened to its exports to markets (principally the EU) where tariffs did not change.

We find that when tariffs fell in a particular market, the rate at which medium and large firms (i.e. firms with 100+ employees) started exporting to this market increased. Firms which already exported to the affected market did not change the price charged

to buyers. So, the price faced by purchasers wanting to import from Ireland fell one-for-one with the reduction in tariffs. As one might expect given that purchasers faced lower prices, the quantity of exports increased markedly for these firms. Combining the impact on export entry and exit with that on the value of exports of continuing exporters, our results suggest an elasticity of aggregate exports with respect to a tariff change of between -2.3 and -5.2, with our preferred estimate lying in the neighbourhood of -4. This number means that if the tariff firms face in a particular market falls from 10% to 0%, there will be a 38% increase in exports to that market.

Evidence from antidumping duties

The period between the founding of the WTO and the events of 2016 did not see much in the way of large-scale tariff increases, but various countries levied antidumping duties. Antidumping duties differ from MFN tariff changes and from tariff changes negotiated in the context of preferential trade agreements in that they are temporary. In addition, they are targeted at a particular country or countries, and even at specific firms. Lu et al. (2013) examine the response of Chinese exporters to antidumping duties levied on them by the US. They find that marginal Chinese exporters exited the US market in response to these duties, while there was a modest decrease in sales for surviving (large) exporters. Chinese export prices did not respond to antidumping duties, implying that the duties were passed on one-for-one to US purchasers of Chinese exports. These findings are exactly what one would predict based on extrapolating the responses of Irish firms to reductions in MFN tariffs.

Pierce (2011) examines the flip side of these anti-dumping duties. He looks at the impact on protected plants in the US. These duties were directly solicited by the protected plants, so there is a potential issue of reverse causality which Pierce addresses by comparing plants which successfully undertook antidumping cases with those whose antidumping cases were ultimately unsuccessful. He finds that antidumping duties slowed the exit of less-productive US producers. The evidence suggests that these producers were able to survive because they increased both prices and markups, consistent with industry prices rising in response to antidumping duties.

Evidence from Trump's trade war

Two recent papers (Amiti et al. 2019, Fajgelbaum et al. 2019) investigate the impact of unilateral tariff actions undertaken by the US administration in 2018, as well as retaliatory actions taken against the US. Both papers make use of publicly available trade data at the product level. Although they cannot look at responses of individual firms, they arrive at conclusions consistent with our work on Irish exporters and the firm-level evidence on antidumping duties. Amiti et al. find that tariff changes were passed on one-for-one into import prices, leaving exporter prices unchanged. Meanwhile, they estimate that the elasticity of US imports with respect to tariff changes was around -6.5, while the elasticity of US exports with respect to retaliatory tariff changes in partner countries was -3.9. This latter number is similar to the elasticity we found using Irish exporters' responses to tariff reductions (i.e. -4). In addition, Amiti et al. find that import variety – measured using HS 10-digit products – declined in response to US tariff increases. Fajgelbaum et al. find broadly similar results.

The role of exchange rates

It is sometimes suggested that the impact of tariff changes may be partially offset by movements in exchange rates. For example, if China lets its currency depreciate against the dollar, this could potentially reverse the impact of tariff increases. In Fitzgerald and Haller (2018), my co-author and I directly address this possibility. We find that along all dimensions, exports are much less sensitive to changes in exchange rates than they are to changes in tariffs. In Fitzgerald et al. (2019), we show that this is partly due to the fact that exporters absorb some portion of exchange rate changes by adjusting markups, and partly due to the fact that even conditional on changes in markups, export quantities are much less sensitive to changes in exchange rates than they are to changes in tariffs. So, while there may be some offset of higher US tariffs on Chinese imports through exchange rate movements, this is likely to be modest. For full offset, the movement in exchange rates would have to be very large, and potentially very destabilising to international capital flows. In addition, this offset can go in one direction only. In the case of a trade war, depreciation against the dollar may reduce the impact of US tariffs

on imports from China, but it exacerbates the impact of retaliatory tariffs on US exports to China.

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6 Trade wars in the GVC era

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The nature of global commerce has changed dramatically over the past 40 years, with the meteoric rise of global value chain (GVC) trade.¹ Simply put, countries and companies make goods differently today than in the past. In the 21st century, products are ‘made in the world’, as firms combine raw materials, inputs, labour, and ideas – the many slivers of value that ultimately make up a final product – each sourced from around the world according to specific cost-benefit tradeoffs for every component part of the value chain. This phenomenon has been made possible by innovations in communications and transportation technologies, together with institutional and market reforms that have allowed scores of countries to join (or rejoin) the global economic landscape. GVC trade – measured as a dramatic rise in the trade in value-added sub-components relative to gross trade – is the quantifiable manifestation of this ‘made in the world’ global production revolution.

In turn, the rise of GVC trade has reshaped the economic consequences and political contours of trade protection. While trade wars have always been disruptive, they are particularly expensive and divisive in the GVC era.

This chapter builds on insights from recent research to identify three critical dimensions of GVC trade that promise to make today’s trade wars more economically costly and more politically complex than previous trade wars. Along the way, the discussion highlights distinctive aspects of the current, 2018-2019 trade actions that could carry additional, unintentional costs for the US economy.

¹ See Baldwin (2016) for an overview of the GVC phenomenon and Johnson and Noguera (2017) for an authoritative empirical examination.

The first point is obvious but important: GVCs amplify the effects of tariffs. Because tariffs are (typically) applied to the gross value of a good when it crosses the border, rather than just the ‘new’ value added, every border crossing increases the total tariff bill associated with production.

For example, suppose that a pair of blue jeans is made in three stages: first, raw cotton is grown in country A and exported to country B; then country B processes the cotton into denim fabric, which is exported to country C; finally, country C cuts, sews, and finishes the jeans to be sold, ultimately, in country A. If each country imposes a uniform 10% tariff on all imports, a tariff will be paid three times during the production process, with escalating costs as the gross value of trade increases from raw cotton, to the cotton fabric, to the finished product. Had the jeans been produced start to finish in country C, the tariff would be paid just once (when the final product is shipped to the consumer in country A), and the total cost of production, inclusive of tariffs, would be lower.

The implication is immediate: the costs of higher tariffs in a trade war will be greater (potentially many times greater) in a trading system with GVC trade than in an otherwise equivalent world without it. The corollary (discussed further below) is that higher tariffs in general, and trade wars in particular, may induce firms to shorten or otherwise reshape their global supply chains.²

The second point concerns not the total cost of a trade war, but the distribution of that cost across different stakeholders. Fundamentally, GVC linkages mean that the burden of tariffs falls differently among consumers, workers, and firms involved throughout the value chain. As explained below, some of the costs of trade protection may ultimately be borne by upstream producers in the country imposing the tariff,³ while some of the producer-side benefits from trade protection enjoyed by local import-competing firms may be passed along to foreign interests.

The same example of blue jean production serves to illustrate. Suppose now that country A increases its tariff on all products (including blue jeans) to 25%. If country

2 See Johnson and Moxnes (2016), Head and Mayer (2016), and Antras and De Gortari (2017) for efforts to quantify the extent of potential global supply chain dislocation in response to rising trade costs.

3 See Blanchard (2010, 2015) for formal treatment and broader policy implications of this point.

A's consumers constitute a sufficient share of global demand for blue jeans, then an increase in country A's tariff may drive down the export price received by the producers of jeans in country C. (That is, the incidence of the tariff will be shared by consumers in country A, who pay higher prices, and producers in country C, who receive lower prices, with the government of country A collecting the difference as tariff revenue.) By the same logic, if country C's jeans producers are an important source of global demand for denim fabric, producers of jeans in country C may be able to pass on some of the fall in their revenue to producers of fabric in country B, who would then receive a lower export price. In turn, if country B is a sufficiently important market for country A's raw cotton, the price of cotton in country A may also fall. Thus, ultimately, the costs of country A's tariffs on imported blue jeans will be shared between country A's consumers and all of the producers of value added embedded in the imported blue jeans, including, potentially, the producers of raw cotton in country A.

Meanwhile, if country A had a local producer of blue jeans competing head-to-head with imports from country C, that producer would gain from the additional protection afforded by the 25% tariff. But if that local producer was owned by a foreign interest, or sourced its inputs from abroad, part of the benefit of that trade protection would be passed up the value chain, outside of country A. Thus, GVC linkages mean that country A may see its tariff protection eroded, even as it must internalise more of the costs of its tariff hike (Blanchard et al. 2016).

The extent to which producers in each country bear the costs of the tariff depend on a host of factors, including market power, bargaining relationships, input customisation, and trade volumes. Whatever the details, the broad implication is the same: GVC trade means that the costs and benefits of higher tariffs – and by extension, trade wars – may extend well beyond the immediate 'intentional' targets to include countries and companies around the world, including the very country that imposed the new protection at the outset.

The third point recognises that GVCs are themselves determined by market forces. Because GVC structure is the result of strategic sourcing and foreign investment decisions of globally engaged firms, tariffs may have large, long-lasting, and unanticipated consequences for the pattern of global production. If rising tariffs (or even just the threat of a trade war) causes firms to change how and where products are made in the

world, this additional production dislocation will carry additional efficiency, job, profit, and welfare losses. Moreover, given the complex calculus faced by firms responding to changes in the global economic landscape, there is good reason to believe that global firms may not respond the way the importing country wants or expects.

Production dislocation is particularly likely under a tit-for-tat tariff escalation, in which multiple countries raise tariffs at the same time. All else equal, higher tariffs give firms an incentive to consolidate their global supply networks into fewer countries, border crossings, and (thus) vulnerabilities. But *where* firms choose to consolidate that production depends on a host of factors, including proximity not only to expected consumers but also to raw material, critical input suppliers, local economic regulations, policy certainty, access to skilled and low-cost labour, and more. To the extent that some of the 2018-2019 tariffs are intended to induce producers to ‘re-shore’ production in the US, they may have unintended consequences if firms instead balkanise their production networks somewhere else. “America first” could backfire.

A noteworthy irony, given President Trump’s stated goal to bring jobs back to US shores, is that the administration has imposed new tariffs disproportionately on imported *intermediate goods* (Bown and Zhang 2019)— the very inputs that are necessary for US manufacturers to produce and sell their products competitively in the US and global markets. If the intent is to induce US manufacturers to ‘re-shore’ production to the US (or to dissuade US firms from moving final assembly/downstream production overseas), *lower* tariffs on imported intermediate goods would be in order. Higher tariffs on intermediate goods – together with increased uncertainty over the future of US tariff policy more generally⁴ – run the risk of inducing firms to shift their current production patterns away from the US and into ‘factory Asia’ or ‘factory Europe’.

Global firms seem to appreciate the importance of these GVC linkages and what they mean for the potential escalating and unanticipated costs of trade wars. The US Chamber of Commerce has been a relentless advocate for a quick and amicable resolution of the 2018-2019 trade frictions. At the same time, the United Steelworkers union, which represents nearly one million US worker-members in manufacturing, metals, forestry

4 Handley and Limao (2017) find that the economic costs of trade policy uncertainty can be as large as tariffs themselves.

and beyond – industries that employ workers up and down the value chain across myriad traded products – has been an outspoken critic of renegotiating NAFTA in general, and the US steel and aluminium tariffs against Canada in particular. Perhaps most notably, until recently, many governments *had been* implementing policies consistent with a sophisticated understanding of the relationship between GVCs and trade policy. According to several studies, the contours of GVC linkages and firms’ global sourcing operations were reflected in trade policy before the 2018-2019 trade war, not least in the US.⁵

Early evidence suggests that even in the very short run, the current trade war is taking a toll on US firms and consumers.⁶ The key question in the months and years to come is how, if these tariffs continue, they will begin to feed back through global value chains at the expense of firms and workers in the US, China, and around the world. How, ultimately, will firms shift, consolidate, and potentially balkanise their production to mitigate the costs of tit-for-tat tariffs and the uncertainty of future trade wars? The consequences of this trade war may be slow to unfold and long lasting once they do.

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5 Blanchard et al. (2016) and Blanchard and Matschke (2015) provide empirical evidence that GVC linkages and the pattern of multinational firms’ global sourcing activities (respectively) influence tariff setting in practice.

6 Amiti et al. (2019) and Fajgelbaum et al. (2019) find evidence that in the past year, most of the costs of the new 2018 US tariffs have been passed through to US consumers as higher prices. The first paper finds additionally that the 2018 tariff increases have already induced significant changes in US firms’ supply networks and a decline in firms’ and consumers’ access to imported varieties.

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7 Supply chain linkages and financial markets: Evaluating the costs of the US-China trade war

Yi Huang, Chen Lin, Sibó Liu and Heiwai Tang

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On 22 March 2018, the Trump administration started a trade war with China by issuing a presidential memorandum, which proposed to impose 25% tariffs on over \$50 billion worth of Chinese imports. On 10 July 2018, it raised the stakes by imposing tariffs of 10% on an additional set of Chinese imports worth \$200 billion. Both times, the Chinese government retaliated immediately, imposing tariffs on US imports of similar value. Two recent studies find that US tariffs on China have led to a significant welfare loss (about \$7.8 billion, or 0.04% of US GDP) and significant increases in consumer prices in the US, due to an almost complete pass-through of the tariffs to US prices (Amiti et al. 2019, Fajgelbaum et al. 2019).

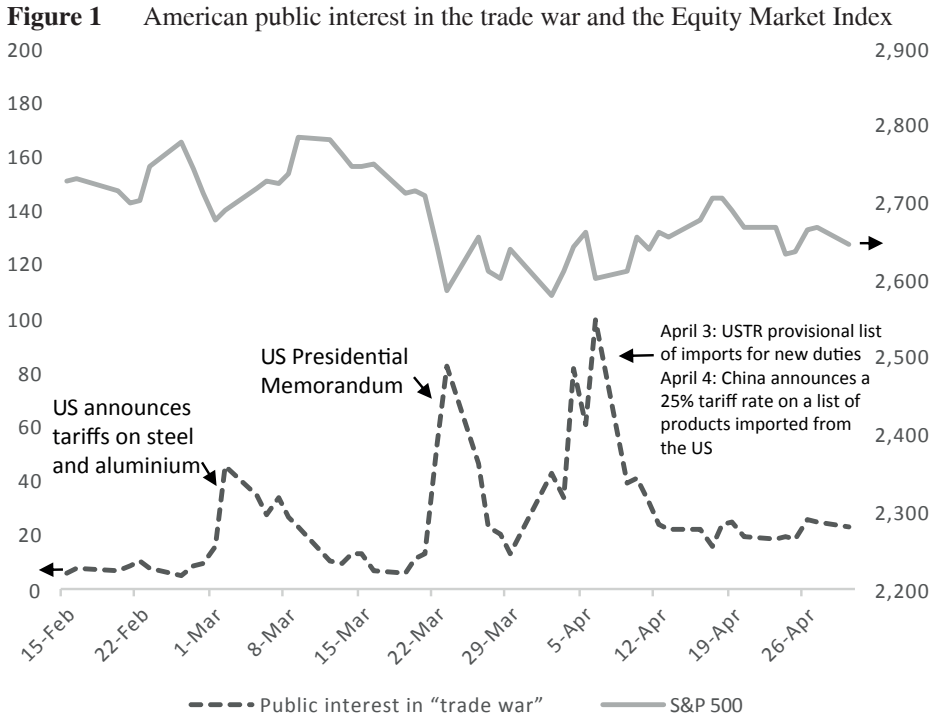
In a recent study, we evaluate firms' equity market responses to the various trade war announcements by both the US and Chinese governments in 2018 and 2019 (Huang et al. 2018). We find that within an industry, firms' reactions to the announcements are heterogeneous, depending on their direct and indirect exposure to US–China trade. More specifically, US publicly listed firms that are more dependent on exports to and imports from China showed lower equity returns but higher default risks in the three-day window around 22 March – the day President Trump signed the first executive memorandum imposing tariffs on Chinese exports. Chinese publicly listed firms that are more reliant on the US as a market for final sales (but not inputs) were also affected significantly more than firms with no direct exposure within the same industry. We also find that firms' indirect exposure to US–China trade through domestic input-output linkages impacted their responses to the announcement.

These findings suggest that the structure of US–China trade is much more complex than is suggested by the simplistic view that the trade war against China will shift profits from China to the US and only harm Chinese companies that depend on the US markets. Consumers and firms in both countries that are indirectly linked to supply chains involving US and Chinese companies will also be affected. Tariff-induced increases in production costs can be amplified along supply chains until the final stage, when goods are sold to consumers.

Evidence from financial markets based on an event-study approach

As Figure 1 illustrates, the S&P 500 index dropped by 4.5% between 21 March 21 and 23 March 2018 in response to the US presidential memorandum based on the Section 301 *Investigation of China’s Laws, Policies, Practices, or Actions*. Public interest in the trade war peaked on 22 March, as measured by the frequency of searches for “trade war” on Google. Similar declines in the stock market index and spikes in public interest are also observed for the other two announcement dates (3 and 4 April). These market responses suggest that the US presidential memorandum that initiated the trade war came as a surprise. In China, the US presidential memorandum in March also came as a surprise, bringing down the China Securities Index (CSI) 300 by 4.5% between 22 March and 24 March (Figure 2).

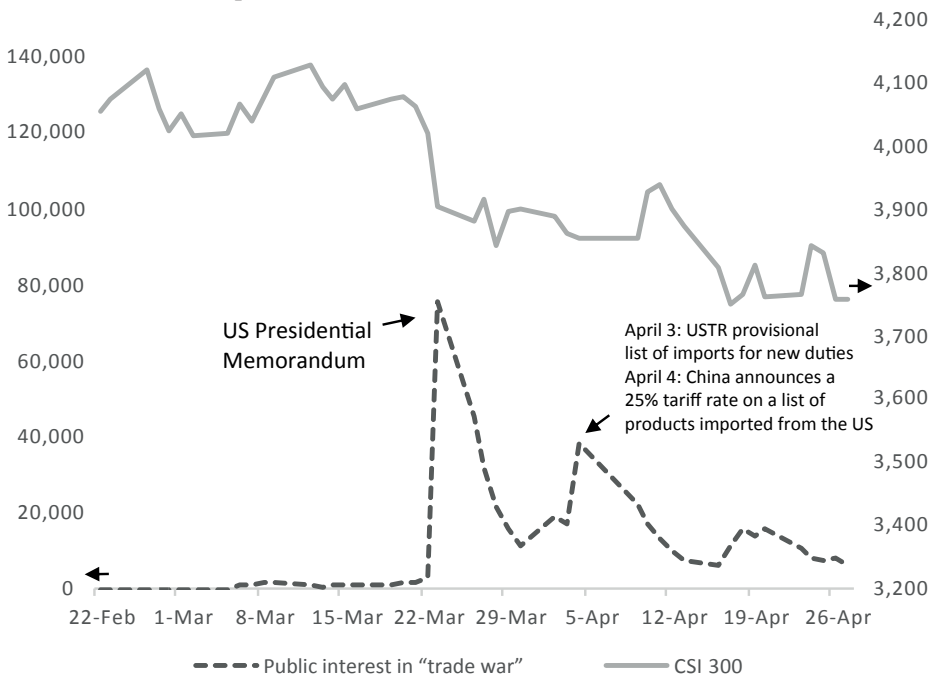
We exploit this unexpected and abrupt policy announcement by the US government on 22 March and apply an event-study approach to examine publicly listed firms’ market responses to the announcement in both countries. We use a novel dataset that reports firms’ intertwining input-output relationships, together with various datasets on companies’ financial outcomes and international trade, to assess a US (Chinese) firm’s direct exposure to imports from and exports to China (the US), as well as US firms’ indirect exposure to trade with China through their engagement in global value chains.



Note: The solid line indicates the Standard and Poor (S&P) 500 index (right-hand scale), while the dashed line shows public searches for “trade war”, as measured by Google Trends (left-hand scale).

We find significant and heterogeneous responses to the announcement of tariff hikes across listed firms in both countries. In the three-day window surrounding 22 March 2018, US publicly listed companies that export more to (or import more from) China experienced lower stock returns, as illustrated by Figure 3. Specifically, in the three-day window around 22 March, we find that after controlling for standard firm-level characteristics and industry fixed effects, a ten percentage point increase in a firm’s share of sales to China is associated with a 0.5% lower average cumulative abnormal stock return, while firms that directly source inputs from China have a 0.6% lower average cumulative abnormal stock return than those that do not. In addition, firms that are more exposed to US–China trade experienced higher default risks, as revealed by a sudden increase in the implied CDS spread over the same three-day period.

Figure 2 Chinese public interest in the trade war and equity market index



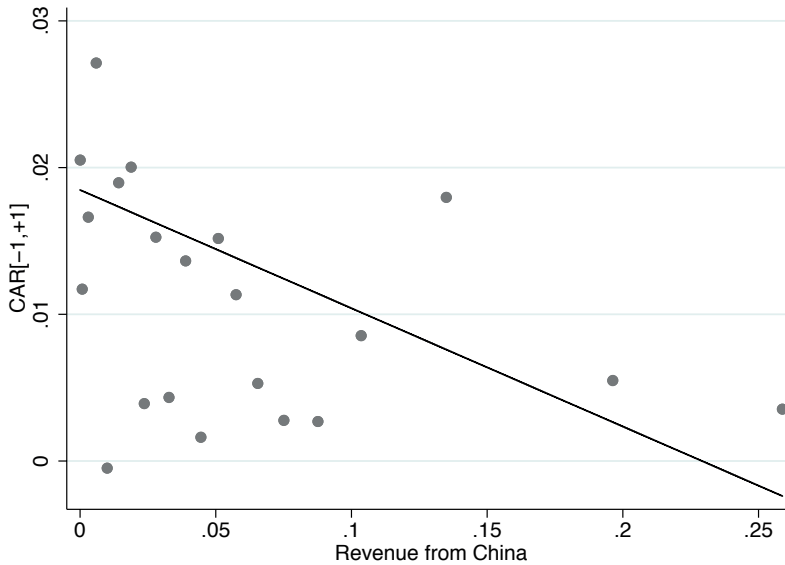
Note: The solid line indicates the China Securities Index (CSI) 300 index (right-hand scale), while the dashed line shows public searches for "trade war", as measured by Baidu search intensity (left-hand scale).

Our research also exploits the lists of highly disaggregated products that are subject to tariffs imposed by either government. Using natural language processing of 10-K reports filed by US listed firms to the Securities and Exchange Commission (SEC), we measure a company's share of sales that are subject to the different rounds of tariffs, based on product descriptions. We find that US listed firms that derive proportionally larger sales from products that were subject to the tariffs imposed by the Chinese government on 23 March experienced a larger drop in cumulative equity returns around the announcement date on average. Using US bill of lading data, we can also measure US firms' dependence on imported inputs from China that were subject to tariffs. We find that the weighted average of a US firm's import tariffs is negatively correlated with its three-day cumulative stock return around the announcement date.¹ These results

1 The weighted averages are constructed based on the US' 3 April list, with weights equal to import shares in the firm's total imports.

complement the finding that US tariffs can substantially raise the prices of imported inputs from China, and thus US firms' costs of production.

Figure 3 US firms' cumulative abnormal returns and share of sales from China



Note: This figure presents the binned scatter plots for the relationship between a firm's cumulative abnormal returns adjusted by the market model and its revenue from China.

We find that these negative financial market responses are not the result of overreactions to news. The medium-term (30-day) effects are significantly larger, while the responses of more exposed US firms to subsequent trade war announcements continue to be negative, but weaker. This suggests that the news of a further deteriorating US-China relationship was perceived by the market as less surprising. We also find significantly positive market responses for the exposed firms to the progress made in the US-China trade talks that took place in Beijing between 7 and 9 January 2019. Taken together, these findings suggest that in the absence of real-time economic data, one can use high-frequency financial market data to evaluate the impact of a policy shock on individual firms, and possibly on macroeconomic outcomes.

The effects of the 22 March memorandum on the Chinese financial market were also substantial. Chinese listed firms that are more dependent on sales in the US demonstrated lower stock returns in that three-day window. After controlling for

standard firm characteristics and industry fixed effects, a ten percentage point increase in the share of exports to the US in total sales is associated with a 1% larger drop in a firm's cumulative abnormal stock return in the three-day window surrounding 22 March. However, Chinese firms that import US intermediate inputs did not experience lower stock returns.

Value chains matter

We also find that a firm's indirect exposure through global value chains matters. We construct production networks that extend up to two levels upstream in the supply chain (i.e. suppliers of a company's suppliers) of each US listed firm. For example, we find that two important US multinational firms – General Electronic and General Motors – have very dense production networks in the US and that most of the firms' direct and indirect suppliers have exposure to China through input sourcing.

Using the network data, we gauge individual firms' equity market reactions to the trade war announcements, due to their direct and indirect exposure to US–China trade through supply chain linkages. On the import side of US listed companies, both direct and indirect exposure to Chinese imports through domestic production networks matter, with the direct exposure to input suppliers in China having a greater quantitative effect. On the export side, both direct and indirect exposure to sales in China matter, but it is the indirect exposure through downstream US firms' exports to China that has a greater negative impact on firms' stock returns, compared to the direct sales exposure.

Conclusions

Our research highlights significant financial market losses – in addition to economic losses – in both the US and China due to the trade war in 2018. Our findings for the US reveal adverse effects induced by the perceived increases in the prices of inputs from China due to US tariffs and the perceived reduction in sales in China due to China's retaliatory tariffs. Our analysis on Chinese listed firms demonstrates that firms' export exposure – but not their import exposure – determines their responses to the US announcement of tariffs against China.

These firms' market responses demonstrate that the structure of US–China trade is much more complex than the simplistic view of global trade that prompted Trump's trade war. Our findings show that the winners and losers in the US–China trade war depend on firms' positioning in, and exposure to, the global value chains shared by the two countries. While raising the prices of imported goods can transfer profits from foreign to domestic businesses, our study shows that the benefits are far outweighed by the (perceived) increases in input costs. Given the complex structure of US–China trade, most of the firms in both countries were not isolated from such negative cost shocks.

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Part 3

The challenges for the world trading system

8 Misdirection and the trade war malediction of 2018: Scaling the US–China bilateral tariff hikes

Simon J. Evenett and Johannes Fritz

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Misdirection is said to be an important element in the magician’s toolkit. Dariel Fitzkee, who made important contributions to the theory of magic, once wrote “The true skill of the magician is in the skill he exhibits in influencing the spectators mind” (Fitzkee 1975). President Trump has sought to persuade US and other interests that unfair Chinese trade practices are the source of American economic malaise and that the remedy is to impose tariff hikes on Chinese exports so as to induce policy change in Beijing.

But has there been another form of misdirection? The overt nature of Trump’s 2018 tariff hikes against Chinese exports have been taken by many trade policy analysts as the most profound challenge to the existing order of trade rules witnessed since the creation of the WTO. These analysts have focused on tariff increase that affect a bilateral trade flow which amounted to just 4.2% of world trade in 2017. To others, President Trump’s behaviour is such an exceptional case that the system cannot be faulted just because it could not deter such extraordinary behaviour.

In this chapter we present evidence that casts doubt on the latter interpretations of recent Sino-US trade tensions.¹ We do so by contrasting the magnitude of the trade covered by the US-China tariff increases in 2018 with the amount of cross-border trade affected by other policy distortions (i) between those two countries in 2018, (ii)

¹ Much of the evidence presented in this chapter was first published in November 2018 in the 23rd Global Trade Alert report (Evenett and Fritz 2018).

between those two countries since 2009 (facilitating a comparison between the 2018 tariff increases and the installed base of protectionism affecting US-Chinese bilateral trade), and (iii) compared to the import distortions implemented worldwide since 2009. Doing so, essentially, puts the so-called trade war of 2018 in perspective.

Sino-US bilateral trade impediments implemented in 2018

Using information in the [Global Trade Alert](#) database on public policy interventions implemented by the Chinese and US governments during 2018, almost all of which were documented from official sources,² plus detailed United Nations trade data on goods trade,³ we computed the total value of Chinese exports (using 2017 data) that faced US tariff increases in 2018, that faced other US trade policies that affected only China in 2018, that faced US tariff increases in 2018 that affected multiple countries (including, clearly, China), and that faced other non-tariff US policies that affected multiple countries in 2018. We also computed the same totals for US policies implemented in 2017 (using 2016 trade data) and during the second Obama administration (reporting the average trade affected during the relevant four-year term.)

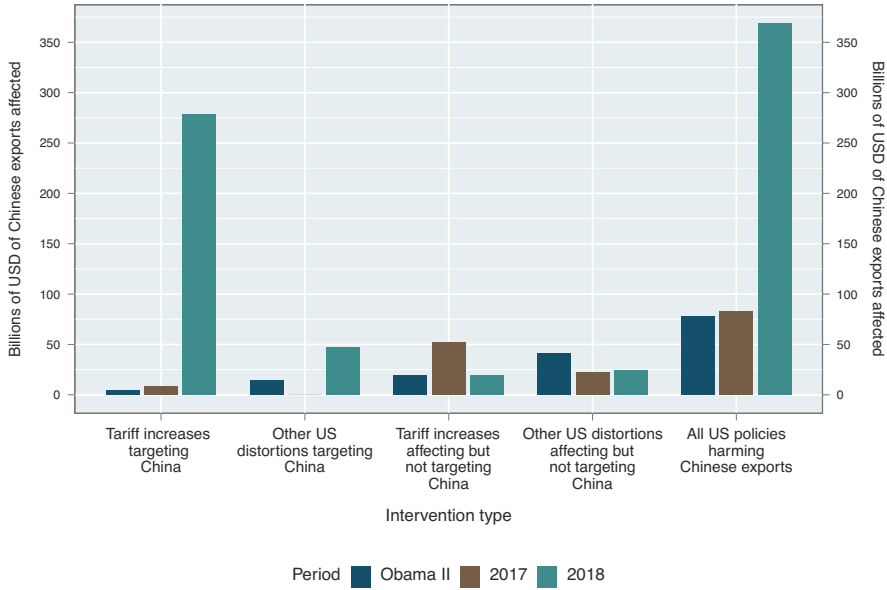
The amounts of Chinese exports affected is presented in Figure 1. The tariff increases that targeted Chinese exports in 2018 stand out in comparison to other US trade policy interventions affecting China in 2018. Still, such was the scale of the US trade policy interventions against Chinese exports in 2018 that a total of \$369 billion of the latter were affected, nearly \$100 billion larger than the headline figure of \$275 billion reported in many newspapers.

In another sense 2018 stand outs: over four times as much Chinese exports faced new trade distortions implemented by the US in 2018 than in 2017 and during the second Obama administration. On these statistics, then, there appears to be a break in US trade policymaking towards China.

2 To be precise, 90.9% of Chinese harmful measures were documented using official sources; for the US the corresponding percentage exceeds 99%.

3 At the six-digit level of disaggregation, the finest grain data available for analysis of global trade flows.

Figure 1 Seen in terms of flows of trade affected, US trade policy actions against China in 2018 were exceptional

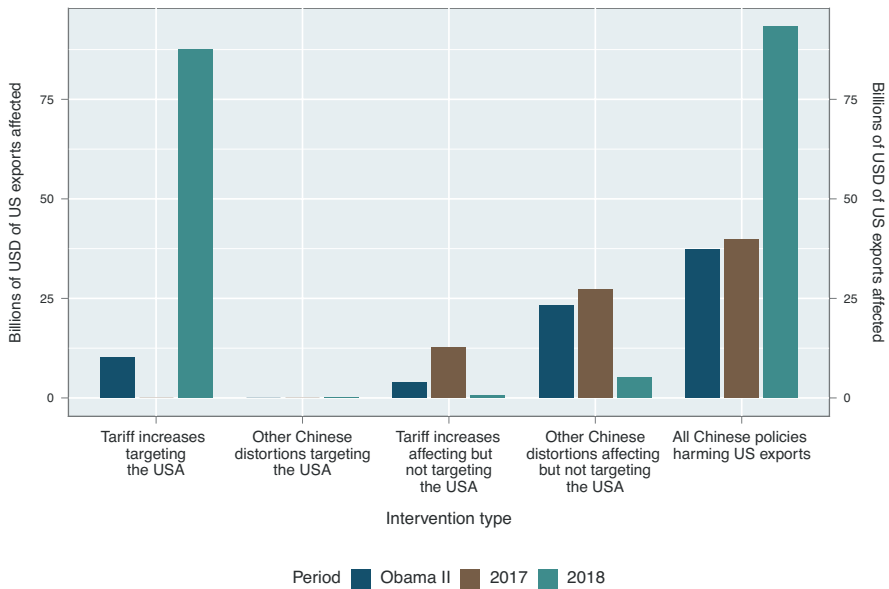


Source: Evenett and Fritz (2018).

The parallel computations for Chinese commercial policy actions taken that disadvantage US exports are represented in Figure 2.⁴ Last year saw a shift in the form of Chinese actions taken against US exporters from policy instruments that affected multiple trade partners towards tariff increases that only target American exports. Comparing Figures 1 and 2 reveals that in 2018 Chinese exports affected by US harmful actions are at least three times US exports at risk by Chinese policies. Of course, the fact US exports to China are a fraction of those in the opposite direction limits the degree of Chinese retaliation on US exports. Still, that retaliation is partial.

⁴ This analysis examines the impact of Chinese policy on *US exports*, but does not consider how Chinese policy affects sales by US multinationals in China to local Chinese consumers.

Figure 2 Chinese partial retaliation to the US tariff hikes of 2018



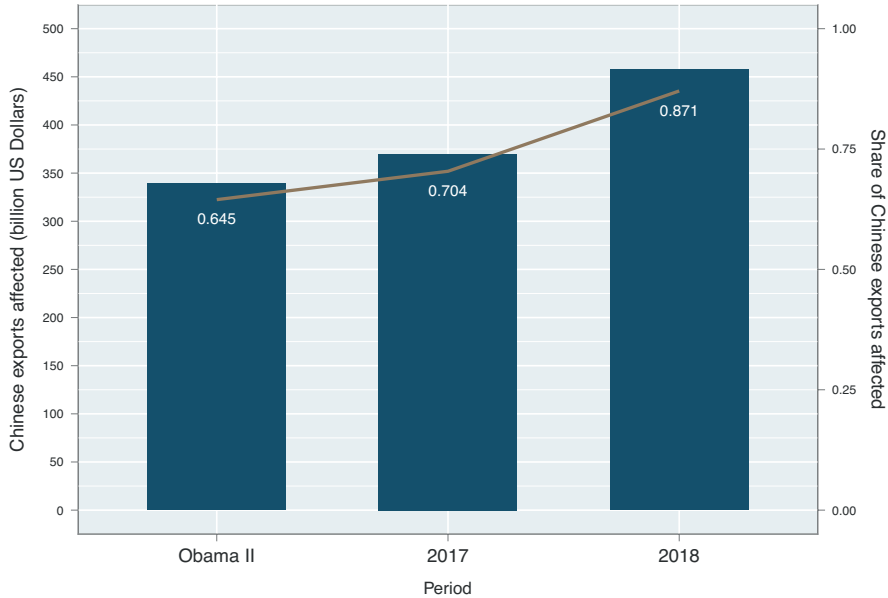
Source: Evenett and Fritz (2018).

Seventy percent of US-Chinese bilateral exports faced trade distortions before the tariff hikes of 2018

The 2018 tariff hikes can be benchmarked against the installed base of US discrimination against Chinese exports, and vice versa. Using information on the US policy interventions that disadvantaged Chinese exports in force during the second Obama administration, during 2017, and during 2018,⁵ it is possible to gauge the extent to which the 2018 actions added to the overall coverage of Chinese exports facing US trade distortions.

5 Again, taken from the Global Trade Alert database. More specifically, the relevant harmful commercial policies used in calculations here are those implemented since 1 November 2008. In principle, there could be US trade policies harming Chinese exports that were implemented before that date and that still harmed Chinese exports since the start of the second Obama administration. In which case, the amount of Chinese exports facing US protectionism before the tariff hikes of 2018 may have been higher and the jump witnessed in Figure 3 would be even smaller.

Figure 3 By 2017 less than 30% of Chinese exports to the US did not face some policy-related trade distortion

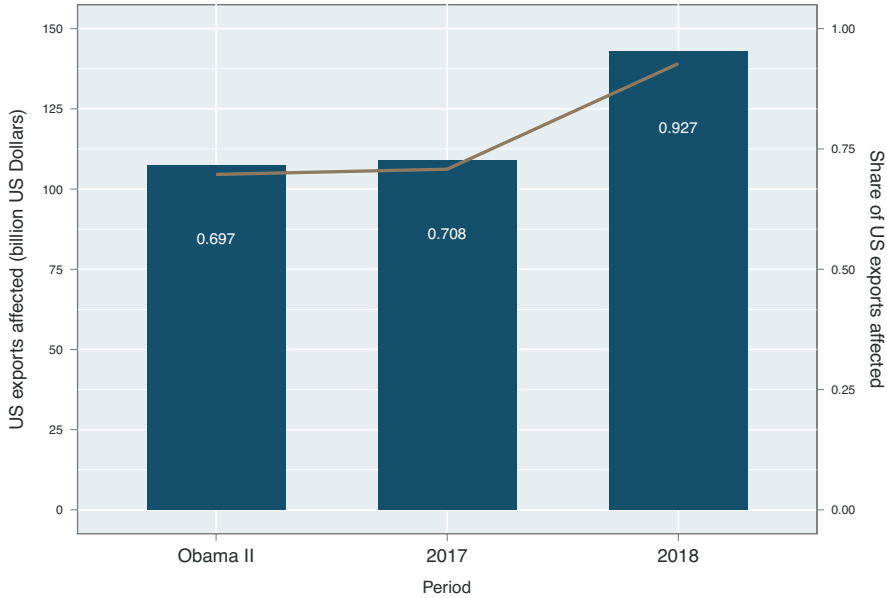


Source: Evenett and Fritz (2018).

Figure 3 reveals that before the US tariff hikes of 2018, over 70% of Chinese exports to the US already faced one or more US trade distortions. Any notion that the ‘trade war’ has disrupted unfettered Chinese exports to the US should be set aside. So too should claims that previous US administrations had not taken extensive measures to limit Chinese commercial opportunities in the US market place. This is not to equate the height of the trade distortions affecting Chinese exports before and after 2018.

The comparable analysis of the stock of trade distortions facing US exports is presented in Figure 4. Coincidentally, only 30% of US exports to China did not face a policy-induced trade distortion before the tariff hikes of 2018. After those hikes the percentage of unfettered US exports fell to 8%, implying that the Sino-US trade tensions have reduced the degree of unfettered US market access to the Chinese markets more than in the opposite direction. Figures 3 and 4 imply there was plenty of scope for both protagonists to reduce obstacles to the other’s exports, should they decide to make the most of the negotiations launched after the last G20 Leaders’ Summit.

Figure 4 After last year's Chinese tariff hikes, less than 8% of US exports to China competed on a level playing field



Source: Evenett and Fritz (2018).

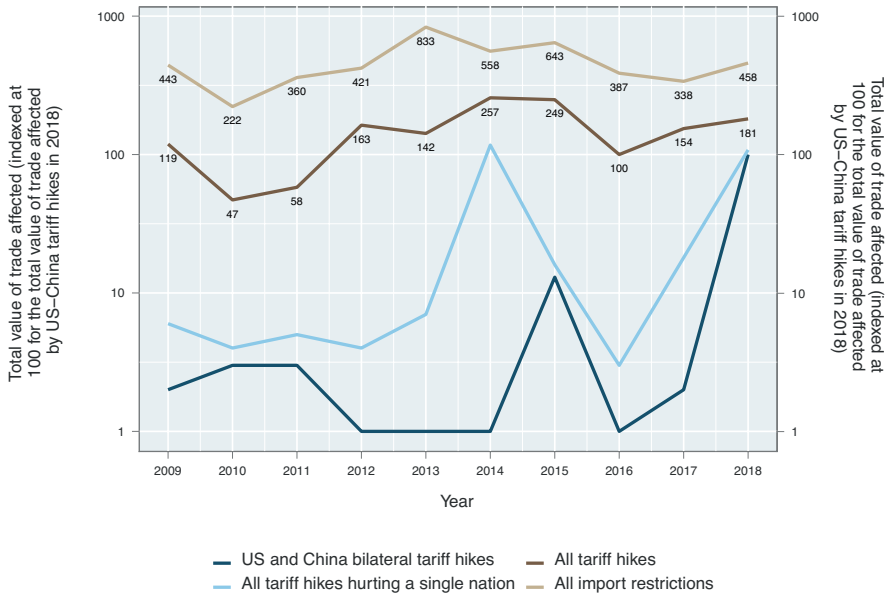
The Sino-US 'tariff war' against the backdrop of creeping covert global protectionism

Further context can be provided by comparing the amount of bilateral goods trade covered by recent US-Chinese tariff increases with those covered by various trade distortions imposed worldwide over the past decade. Given the former trade tensions have not, fortunately, resulted in other countries raising trade barriers on anything like the scale of China or the US, then it is possible to assess the global significance of this spat. Could the US-China tariff hikes be a drop in the bucket in the ongoing resort to trade distortions by governments?

To fix ideas, we created an index of the total value of trade flows affected by different bilateral and global trade policy developments. Throughout we set that index to 100 for the total value of Chinese and US goods exports facing tariff increases imposed by the other in 2018. Figure 5 compares the total amount of bilateral Sino-US goods

exports facing tariff increases imposed by the other for the years since 2009. Noting that the vertical axis in Figure 5 uses a logarithmic scale, we confirm that 2018 involved an unusually large amount of goods exports affected by US tariff increases targeting China, and vice versa. This amount is then compared to the value of exports facing tariff hikes from any exporter, not just the US or China, shown by the light blue line. The latter line also spikes in 2014, the year when EU tariff preferences for Chinese exports were withdrawn. Other jurisdictions, then, have targeted Chinese exports on a wide scale but less brazenly.

Figure 5 In 2018 three-quarters of trade facing new import distortions had nothing to do with the Sino-US bilateral tariff hikes



Source: Evenett and Fritz (2018).

The total amount of exports affected by Sino-US tariff hikes (the dark blue line) pales into significance when compared to the amount of global exports affected by tariff increases of all types worldwide (the dark brown line) or the amount of global exports affected by a host of import distortions⁶ (the light brown line) in the decade since 2009. In 2018 the total amount of exports affected by Sino-US trade tensions amounted to less than 22% of the worldwide goods trade last year that faced some type of trade distortion in the importing jurisdiction. By focusing on the brazen protectionism of the Trump Administration in 2018 and Chinese retaliation, have trade policy analysts fallen for the trap of misdirection, that is, failing to spot more far-reaching commercial policy developments? And this discussion has focused on distortions to imports – over the past ten years, policies to goose exports have covered larger amounts of trade (Evenett and Fritz 2018).

Concluding remarks

In light of the statistics presented in this chapter, what is the practical and intellectual significance of the Sino-US tariff hikes of 2018? As a practical matter, the uncertainty engendered by these trade tensions – in particular, the fear that these tensions may spread and draw in other nations – is likely to have had a larger economic impact than the direct restrictive effect on international trade. For all the US' and China's heft, more than 95% of world trade takes place between other nations.

The intellectual significance of scaling the 2018 Sino-US tariff increases is two-fold. First, it begs the question of what actions constitute a trade war. Do bilateral tariff hikes constitute a trade war even if they only affect a small percentage of world trade? What about non-tariff distortions to trade? Clarity about definition is required before modelling can proceed.

6 Strictly speaking, the import distortions taken into account here are import tariff increases (including those associated with trade defence and safeguard actions), import quotas, and subsidies to import-competing farmers and manufacturers (that bolster their market shares), local content requirements, and buy local government procurement provisions. The statistics presented in Figure 5 therefore do not reflect the imposition of technical barriers to trade and sanitary and phytosanitary standards, which would likely significantly increase the trade covered.

Second, to what extent has our understanding of trade wars been skewed by an excessive focus on sharp changes in the more transparent trade policies? Have analysts given too much weight to the brazen protectionism of the Trump administration and overlooked other, larger policy-induced trade distortions? Doing so may skew the assessment of the effectiveness of the current trading rules in reining in protectionism. Or are statements such as that by Wilbur Ross, US Secretary of Commerce, that “trade wars are fought every single day”⁷ better characterisations of contemporary trade policy dynamics in an era of profound geopolitical and technological shifts? In which case, the Sino-US tariff hikes of 2018 could be the latest chapter in an increasingly distorted, yet nominally open, world trading system.

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7 Statement made at the World Economic Forum in January 2018.

9 The never-ending story: The puzzle of subsidies

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'Controversy' is the word

Subsidies have long constituted a policy and legal puzzle. Governments have always subsidised sectors and industries in their economies. Special interests loathe foreign public support going to competitors, but then lobby their governments to receive the same (or greater) assistance at home. Even on an ideological level, one has always found a confrontation between those who favour subsidisation and those who despise it (Hufbauer and Shelton-Erb 1984).

Subsidies are one of the most contentious policy measures at the disposal of governments. Unlike tariffs or quotas, the policy objectives pursued may be mixed (for example, supporting green energy *and* boosting local industry and jobs). Effects are also mixed, with positives and negatives being produced and, in an increasingly globalised economy, with spillovers often crossing national borders. At the same time, subsidies are more visible and their effects on certain sectors and industries are often felt more immediately and directly than those of other important domestic policies, such as general taxation or regulation, thus generating a particular attraction for lobbies and special interests. It is therefore reasonable to believe that, in addition to being tools to deal with spillovers, governments may have often welcomed international rules governing subsidies as offering them the 'excuse' to resist domestic lobbies and pursue rational policies (Bishop 2005, Krugman 2018).

Since the late 1800s, the need to arbitrate these measures at the international level been a key question for international law.¹ Rules regulating subsidies and countervailing measures were present in the GATT 1947 and were increasingly elaborated through the Tokyo Round Subsidy Code in the 1970s and the Uruguay Round in the 1980s and 1990s. In a recent analysis of more than 280 preferential trade agreements (PTAs) signed between 1956 and 2016 (Rubini 2019), I show that subsidy provisions represent one of the standard chapters of trade regulation (being present in 95% of all PTAs).

But, despite this great wealth of regulation, many issues are still left wide open. From the international perspective, the biggest puzzle is how to create rules that manage to balance positives and negatives, especially where losers and winners from subsidisation are in different countries. How can a transnational trade-off be made and incorporated into a legal framework? And, even before distinguishing the good from the bad, it is necessary to pinpoint in legal language what a subsidy is, which is, to this day, an elusive task. It is a fact that many policy measures may cause the effects of a subsidy, that is, give economic advantages to firms and sectors. What is a subsidy? What is a state aid? How and where does one draw the line? What should be regulated and what should not?²

These questions encapsulate the dilemmas that have agitated subsidy regulation for years. Clearly, these questions are not only technical, but often normative and always political, inasmuch as they touch the constitutional core of state sovereignty in economic, political, and social matters. It is this possibility that makes each stage of law-making (negotiation, drafting, interpretation, and application) in the area of subsidies terribly sensitive. Multiple actors, and multiple forces, at various levels have always been at work in the attempt to mould subsidy laws (Rubini and Hawkins 2016).

The deep root of this contentiousness was expressed in masterly fashion by the late Robert Hudec when he noted that:

1 One can immediately think of the 1902 Brussels Sugar Convention, which dealt with subsidies to sugar and created the first modern international trade institution (Fahkri 2014). An historical overview of the regulation of subsidy and state aid laws can be found in Rubini and Hawkins (2016).

2 A comparative analysis of the key question of the notion of subsidy in the WTO and in the EU can be found in Rubini (2009). Sykes (2010) advances that many of these questions are inherently intractable from a regulatory perspective.

“the political perception is primarily a matter of visibility. Once the helping hand of government becomes conspicuous, it tends to elicit “subsidy” objections no matter what form the help takes” (Hudec 1996).

After several decades of research and practice, there are more questions than answers. And, with the increasing complexity of policy measures that produce subsidy-like effects, finding answers to these questions is becoming more and more difficult. In this scenario, enforcers and adjudicators are increasingly struggling, and the examples of contradictory and conflicting interpretations are growing in number and importance. Legal certainty and security are becoming elusive. Laws are tested to their limits, and their capacity to regulate current and future challenges is put into question. Their responsiveness to fundamental acts of re-orientation is unclear. Calls for law reform are growing. But the pervasive, almost proverbial, lack of clarity in the area, as well as its sensitivity, have always represented fundamental obstacles to any serious attempt for change.

Current tensions: Do WTO subsidy laws bite?

Subsidies have hit the headlines more and more in recent times. In the EU, the European Commission is controversially using state aid control to tackle tax avoidance practices of prominent multinational companies such as Amazon, Fiat, Starbucks, Apple, and McDonald's.³ But do these tax rulings really constitute state aid? Do they really distort competition? And more fundamentally, is EU state aid control the right political and legal tool to tackle tax avoidance?

In the WTO, litigation on European and US support to Airbus and Boeing has put pressure on the dispute settlement system with the longest disputes in WTO history, running since 2004.⁴ At the time of writing, retaliation by both sides is a distinct possibility. With the US already saying they want to impose around \$11 billion a year in tariffs and the EU likely to follow suit, one wonders whether a settlement is on its way (Hufbauer et al. 2009).

3 “Margrethe Vestager: We are doing this because people are angry”, *The Guardian*, 17 September 2017.

4 “WTO rules US failed to stop unfair tax breaks to Boeing”, *Financial Times*, 28 March 2019.

At the same time, the organs of WTO dispute settlement, and in particular the Appellate Body, have come out with decisions interpreting the definition of subsidy which have been quite controversial (Rubini 2017). For example, in the *United States – ADs and CVDs on Certain Products from China* (DS 379) decision of 2013, the Appellate Body produced an interpretation of the expression ‘public body’ which many have considered too restrictive, with the result of making it more difficult for the rules to catch many subsidy practices (Cartland et al. 2012, Pauwelyn 2013). Similarly, in the *Canada – Renewable Energy* dispute (DS 412 and 426), the adjudicating bodies controversially concluded that a very common policy supporting green energy – a feed-in tariff – was not a subsidy. Commentators imputed the adjudicators as indulging in “legal acrobatics” (Mavroidis and Cosbey 2014). Neglecting the arguably clear language of the law, a split panel (with one member dissenting) and the Appellate Body were at pains to conclude that this was not a subsidy (Rubini 2014).

At the same time, following the Appellate Body rulings in the *EC – Large Civil Aircraft* (DS 316) and *US – Tax Incentives* (DS 487) disputes, the test to prove that certain subsidies are prohibited is particularly demanding. Another example is the particularly narrow interpretation of the remedy for those subsidies that have been found to be illegal (technically, ‘actionable’) which was handed down by the Appellate Body in the 2018 report in the *EC – Large Civil Aircraft* implementation proceedings. Now, crucially, some claim that the combined effect of these decisions may be that current WTO subsidy disciplines are unduly under-inclusive. In other words, so the argument goes, WTO subsidy laws do not bite as they should.

The challenge of the emergence of China and law reform talk

The claim of insufficiency of the current WTO subsidy laws is heightened by the recent emergence of China as a world-leading trade power and by the difficulty of interfacing its huge state-led economy with other largely market-oriented economic systems (Wu 2016). The multilateral rules on subsidies, and their ability to regulate state capitalism, state subsidies and state-owned Enterprises (SOEs), is increasingly put into question.

In March 2018, President Trump signed the first order imposing tariffs on several steel and aluminium products imported from various countries. In a toxic escalation, many other similar orders have followed. Counter-measures have been taken and several disputes are currently being heard in the WTO. A veritable ‘trade war’ has emerged (Irwin 2017, Krugman 2018). The target of the US action is China and its unfair practices that allegedly give its exports unfair advantages. To be sure, action against allegedly unfairly subsidised or dumped imports from China is not new (Bown 2018). What differentiates the current measures from previous trade remedies is their magnitude – and the rhetoric supporting it. Protectionism is now not only practiced but preached.

The US is not, however, the only one to raise claims on China. There is a degree of consensus among several countries that the integration of the Chinese model into the world trading system is becoming increasingly difficult and that action should be taken (Wu 2016). Talk of law reform addressing many of the underlying issues of these trade conflicts started to emerge in 2018. In May, the US, the EU, and Japan announced their willingness to start negotiations on subsidy and SOE rules soon.⁵ Similar initiatives have been started by the EU⁶ and by Canada which spearheaded a group of 13 countries known as the ‘Ottawa group’.⁷ Though the scope of the suggested reform is broader, the need to update subsidy and SOE rules is a common denominator.⁸

An initial draft text on subsidy disciplines produced by the US, EU, and Japanese ‘trilateral’ may come out as early as in the Spring of 2019. What one should expect is a tightening of the current rules, with a more extensive list of prohibited subsidies, and possibly few clarifications of the law as it is now (for example, on the criteria of a ‘public body’). Transparency is a key chapter of any reform of WTO subsidy rules (Wolfe and Collins-Williams 2010) and much of the value of any reform will be assessed against

5 “Joint Statement on Trilateral Meeting of the Trade Ministers of the United States, Japan, and the European Union”, 31 May 2018.

6 “WTO – EU’s proposals on WTO modernization”, European Commission, 5 July 2018.

7 “Joint Communiqué of the Ottawa Ministerial on WTO Reform”, 25 October 2018. China responded to these initiatives on 20 December with a position paper (“China’s position paper on WTO reform”).

8 It should also be noted that new disciplines on fisheries subsidies may emerge soon (see www.wto.org/english/tratop_c/rulesneg_e/fish_e/fish_e.htm).

the objective of achieving better transparency of subsidisation measures.⁹ Finally, as many argue, a balanced subsidy discipline should also incorporate the principle that many subsidies (think of measures supporting the fight against climate change) are positive and should hence be legitimate,¹⁰ which may, however, be a difficult point to agree on.

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9 The claim that not many countries notify their subsidies to the WTO, or that they do not do so consistently or appropriately, is common (see, for example, “Subsidies Committee members express concerns on lack of notifications”, WTO Committee on Subsidies, 23 October 2018). The US, EU, and Japanese trilateral supported a proposal which has been presented in various iterations in the WTO by nine countries (the latest one was on 1 April 2019) and which is based on a ‘name-and-shame’ mechanism.

10 Various policy initiatives have recently addressed the issue of the reform of subsidy laws, the most notable being the E15 Initiative (www.e15initiative.org) organised by the ICTSD and the World Economic Forum (Rubini 2015, Hoekman 2015, Shaffer et al. 2015, Horlick and Clarke 2016); see also the initiative of Bertelsmann Stiftung (2018).

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10 The policy uncertainty aftershocks of trade wars and trade tensions

Kyle Handley and **Nuno Limão**

University of Michigan; University of Maryland

The current era of globalisation was built on rules-based institutions founded partly as a response to the economic protectionism of the 1930s. The current spate of trade wars and renegotiations of agreements threatens a new era of protectionism; or at a minimum, an erosion of the credibility of long-standing bilateral and multilateral policy commitments that have been essential for trade growth.

The threat of trade wars during the Great Recession, the current trade war between the US and China, and the vote in 2016 for the UK to leave the EU are clear examples of rising tensions between major economies and the dissatisfaction of many voters with the outcomes of globalisation. The Trump administration has also used the threat of tariffs to cajole Mexico, Canada, and others into renegotiating trade agreements such as NAFTA, threatened to leave the WTO, and imposed across-the-board tariffs on steel and aluminium. Tit-for-tat retaliation has resulted in higher tariffs on US exports of sorghum, Maine lobster, blue jeans, and heavy weight motorcycles produced by Harley-Davidson, among other products.

The rise in trade barriers, as applied, is troubling. But the major casualty of recent tensions is perhaps the credibility of the rules-based trading system. The benefits of a commitment to openness were recognised in 1920 by John Maynard Keynes, who described the internationalisation of early 20th century commerce thus:

The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his doorstep.

Fully realising such gains was contingent on the belief of consumers and business that a commitment to openness was normal. Keynes continued:

[...] most important of all, he regarded this state of affairs as normal, certain, and permanent, except in the direction of further improvement, and any deviation from it as aberrant, scandalous, and avoidable. The projects and politics of militarism and imperialism, of racial and cultural rivalries, of monopolies, restrictions, and exclusion, which were to play the serpent to this paradise, were little more than the amusements of his daily newspaper, and appeared to exercise almost no influence at all on the ordinary course of social and economic life, the internationalization of which was nearly complete in practice.

Keynes' writing would have applied just as well in 2007, just before the global financial crisis raised the prospect of trade wars for the first time since the 1930s. During the nadir of the crisis, G20 leaders repeatedly pledged that they “[will not repeat the historic mistakes of protectionism of previous eras](#)”.¹ But only a decade later, commitments to multilateralism and the rejection of trade restrictions have been excised from the latest G20 joint statements.²

Recent research shows that one reason trade agreements are valuable to exporters is that they include commitments to stable, predictable trade policy regimes that encourage export investment and trade participation. Threats to exit trade agreements or start trade wars as a pretence to renegotiate agreements weaken their credibility as insurance against protectionism.

A negotiated settlement between the US and China, or between the UK and the EU, may yet be achieved. But the cost may be a new era defined by a higher probability that agreements will be broken or will lack credible enforcement, a situation we define as a trade cold war. This type of policy uncertainty reduces investment and trade – as Graziano et al. (2018) and Crowley et al. (2019) find for trade between the EU and the UK around the Brexit referendum – even before any trade policy has changed. In the US, the actions of the Trump administration have exacerbated existing sources

1 “Statement Issued by the G20 Leaders,” 2 April 2009.

2 “G20 Leaders' Declaration: Building Consensus for Fair and Sustainable Development,” 1 December 2018.

of trade policy uncertainty or generated new risks (Handley and Limão 2017b). For example, the US withdrew from the Trans-Pacific Partnership and imposed new tariffs on a variety of countries and products. Even after renegotiating trade deals with Korea, Canada, and Mexico, punitive tariffs on aluminium and steel remain in place.

Research by Carballo et al. (2018) finds that trade agreements can be particularly valuable as an insurance mechanism during downturns, when protection tends to increase (Bown and Crowley 2013). NAFTA, the EU, and the WTO provide governments with a commitment device so their response to economic and political pressures during downturns is measured and predictable. We find that while the interaction of economic and policy uncertainty exacerbated the reduction in US firms' exports in the 2008 crisis, it did so much less for exports to NAFTA and other preferential partners. In short, preferential trade agreements provided insurance; trade relationships between countries with credible trade agreements were more durable and resilient. This is good for the exporting firms, but also for their suppliers and employees.

Agreements are valuable in reducing trade policy uncertainty even in the absence of economic crises. There is increasing evidence of the export effects of major agreements via reductions of uncertainty, here we briefly describe two: Portugal's accession to the EU in 1986, and China's accession to the WTO in late 2001.

In Handley and Limão (2015), we treat Portugal's accession to the EU as a policy uncertainty shock. Prior to membership, the EU already provided some tariff preferences to Portuguese exporters, but we find evidence that those firms viewed those preferences as uncertain until 1986, when Portugal joined the EU. A substantial share of the trade growth experienced immediately post accession was generated by eliminating that source of trade policy uncertainty. The effects of the threat of Brexit in reducing trade between the EU and the UK found by Graziano et al. (2018) reflects, to some extent, the reversal of that process for the UK.

During the 1990s, China was at risk of losing its most-favoured nation (MFN) status with the US and facing tariffs of 30% on average. When China joined the WTO, the US granted it permanent, unconditional MFN status and removed this source of policy uncertainty. Our results in Handley and Limão (2017a) show that about one third of the observed US import growth from China from 2000 to 2005 was due to this reduction in trade policy uncertainty, which was equivalent to a five percentage point reduction

in applied tariffs. This translated into large import price reductions and US consumer welfare gains of about 0.5%.³

The model and findings from China's WTO accession can also be used to quantify the effect of a US threat to raise tariffs by 25% or more on all its trade partners, which is not far from the current state of affairs. If such a threat persists, it is predicted to increase US prices by more than 2%, or about one third of the impact of completely shutting down imports. Our estimates also imply that the predecessor to the WTO, the General Agreement on Tariffs and Trade (GATT), realised substantial welfare gains from trade by reducing the probability of a large-scale trade war. In a series of predictable, permanent commitments through the GATT, and later the WTO, the US liberalised tariffs from their post-WWII levels of around 22% to current levels.

The lesson for policymakers and trade negotiators is that credible, permanent trade agreements have delivered a marketplace where residents of the US and UK can expect to have all the products of world delivered to their doorstep at the click of mouse. Domestic and foreign businesses, many of which depend directly or indirectly on global supply chains, will continue investing to meet that demand if the international trade policy regime is certain and permanent. A trade cold war with an ever-present risk of higher tariffs is an unwelcome alternative that will both reduce trade and welfare and leave trade relationships more vulnerable in the next economic downturn.

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³ Recent work has also applied our approach to China's WTO accession and confirmed our findings with more detailed data. Accession led to export entry of Chinese firms (Feng et al. 2017) and a reduction in US prices (Amiti et al. 2018).

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11 China's rise and the growing doubts over trade multilateralism

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China's impressive economic and technological rise in the early 21st century is unprecedented in modern times. For one, it marks the first time in the postwar era that the world's leading trade power has embraced an economic and political model different than the traditional liberal democratic, market-oriented model associated with industrialised nations. While the world trading system has never mandated that countries within the regime conform to any economic model per se, the postwar global trade regime has always been led by countries within the Western security alliance, with the US at its fore. China, however, has sought to chart out its own path.

Instead of separating the organs of a political party from those of the state and firms, China's leaders have experimented with a model in which the Communist Party remains deeply enshrined at the core of how both the polity and the market are governed. At the same time, the Party itself has adapted. Compared to a generation ago, there is much greater latitude for private enterprise, market forces, individual choice, and mobility in contemporary China. What has emerged is a unique economic system that I and others have termed 'China, Inc.' It is fundamentally different than other forms of state capitalism, corporatism, or conglomerate-led economies.

This gives rise to a paradox. The world has benefited tremendously from the economic opportunities stemming from the past four decades of China's rise. It can envision many more mutually beneficial 'win-win' scenarios. Common problems such as climate change and global health pandemics require close cooperation. Yet, at the same time, the world remains deeply anxious about China's ultimate motivations. Is China truly seeking a peaceful rise, as its leaders assert? Or is it a revisionist power, out to reshape territorial boundaries, global institutions, and/or human rights norms?

For decades, Western business and political leaders have focused primarily on mutually beneficial opportunities while sidestepping their anxieties. The hope was that by embedding China within a rules-based trading system anchored by the WTO, this would create sufficiently large incentives for the country to remain onboard as a cooperative partner to the Western alliance instead of veering off track to become a revisionist, strategic rival.

For a multitude of reasons, this hope has shattered over the last few years. Especially in the US, but also elsewhere, there is growing concern over China's rise. Military leaders bemoan growing Chinese assertiveness, whether in the South China Sea or cyberspace. Business leaders worry that subsidies, regulatory restrictions, and implicit technology transfer demands will advantage their Chinese competitors unfairly. Human rights leaders warn that China's growing economic and technological prowess will fuel a dystopian future, holding out the treatment of ethnic minorities in Xinjiang as proof.

None of these developments has anything to do with the WTO. Yet, in aggregate, they fuel a growing debate over whether a rules-based global trading system can constrain the anxieties associated with a rising China led by authoritarian leaders. After some debate, the Trump administration concluded that it cannot, leading the US to embrace unilateral tariffs as its preferred means of leverage.

While other countries may share some of the US' concerns, many disagree with its approach. However, they struggle to offer a convincing alternative to the extremes of confrontation versus patient constructive engagement. Fissures are emerging within the Western alliance. Should countries accept recent events in China as a mere hiccup against positive long-term trends? If not, what means exist, besides unilateral tariffs, to exert effective pressure for change? Should they turn away from multilateralism toward plurilateral and regional alternatives instead? If so, given China's size, why would those alternatives prove effective in cajoling China's leaders toward reducing Party interference in the market? Or have the Americans correctly assessed that China is unlikely to accept changes without concerted pressure? If so, is it worth the risk of threatening to abandon trade multilateralism in an attempt to save it?

Such questions will feature prominently in the trade and geopolitical debates of the coming decade. In this chapter I assess the economic challenges associated a rising

China. I explain how China's economic structure differs from others, why WTO dispute settlement has proven ineffective in dealing with the problems that arise out of it, and the debate over how and whether trade multilateralism can adapt in light of the China challenge.

What is 'China, Inc.'?

In a previous piece (Wu 2016), I argued that China's economic system is a unique product of its economic and political history. One mistake is to think of its form as a variation on a theme rather than accept it as *sui generis*. Another is to think of its form as fixed. China's leaders are constantly experimenting and tweaking, with the hopes of improving their governance model. Indeed, the Chinese economic system has been, and will likely remain, the world's most dynamic for the foreseeable future.

What makes this system unique? In my 2016 article, I identified six salient features. Even in the three years hence, some of the specific elements associated with each feature have altered – yet another sign of the dynamism of 'China, Inc.' Nevertheless, the major features remain the same. They include the following:

1. A powerful entity known as the State-owned Assets Supervision and Administration Commission (SASAC), that allows the Party-state to retain control over the 'commanding heights' of the Chinese economy (aerospace, aviation, chemicals, energy, metals, minerals, nuclear, petroleum, power, railway, steel, shipbuilding, telecommunications, etc.) while relying upon signals from market mechanisms.
2. Various financial entities that permit the Party-state to control China's largest banks and thereby direct its financial resources, while still injecting elements of market-based competition.
3. Entities within the Party, such as the Central Financial and Economic Affairs Commission, as well as within the state, such as the National Development and Reform Commission, that provide guidance and coordination across government agencies and firms.

4. Nimble, informal networks between entities in industry sectors that are smaller in scale than the conglomerate structures in Japan or South Korea, but nevertheless facilitate coordination.
5. The Party's Organization bureau, which sets individual performance metrics and directly controls personnel appointments within the government, largest state-controlled firms, banks, research institutions, and so on, thereby incentivising officials, board members, and senior managers to act in line with Party interests.
6. Formal and informal linkages between the Party and private enterprises, including possibly minority equity holdings as well as the establishment of Party cells within companies.

While one or more of these features may exist in another state capitalist, corporatist, or post-transition economy, no other country has all six. Yet, it is the combination of these six features that matters. They give rise to an economy where the Communist Party is able to retain overall control while still taking advantage of the benefits of market mechanisms and competition. This guards against the negative risks associated with inefficient rent-seeking by oligarchs and Party apparatchiks. It also enhances the ability of Party leaders to adjust economic and social policies to deal with market failures and negative market externalities, provided the technocrats are able to properly identify them.

China's leaders will continue to tweak the elements of 'China, Inc.' to improve its performance, but in the near term, they are unlikely to abandon this overall economic structure, lest the Party risks its political control and its ability to deliver on the economic goals required to rejuvenate the Chinese nation.

How is 'China, Inc.' different than past economic competitors?

The notion of a rising trade power with an economic structure different than incumbent powers is not new. Complaints over its closed markets, industrial policy, subsidies, and weak intellectual property protection are also not new. However, 'China, Inc.' differs from 'Japan, Inc.' and other historical antecedents in fundamentally different ways.

The most obvious difference is its size and scale. Analysts predict that China's economy will surpass that of the US to become the world's largest at some point in the next two decades (Pricewaterhouse Coopers 2017, Henry 2018). Even if its growth stutters, its different economic system will continue to cast long shadows on global trade. Already, China is the top trade partner for most countries in East and Southeast Asia, as well as Australia and several countries in Africa and Latin America (WTO 2019).

A second difference is in its organisational structure. While other governments also have close ties with industry, these ties normally run through the state. In China, ultimate control runs through a political party, not the state. At no point did the Liberal Democratic Party of Japan wield anything close to the same power as the Communist Party in China in deciding who serves in senior management and on oversight boards of major banks and industrial firms.

A third difference is geopolitical. China's rise marks the first time that a developing country and one outside of the Western alliance has claimed the mantle of the world's largest trading country. Even after four decades of sustained growth, the living standard of a proportion of its population is more akin to those of Latin America, South Asia, or parts of sub-Saharan African than North America, Western Europe, or Japan. China's continued status as a developing country affords it a larger pool of voting allies in international organisations than other past rising powers.

Lastly, China's rise poses larger spillover effects for ancillary, non-trade interests involving the military and national security. These trigger outsized concerns that China's economic and technological rise may shift the balance of power and weaken the Western security alliance. Because of its current primacy, the US is disproportionately affected by these spillovers, as compared to other industrialised nations that have accepted their diminished status as mid-sized powers dependent on the US' security guarantees.

Why WTO dispute settlement has proven ineffective in dealing with the 'China, Inc.' challenge

The ongoing trade-related complaints extend both within and outside of China. Internally, the Chinese market is more open than ever. Yet, because of the lurking shadow of 'China, Inc.', foreign firms continue to perceive an uneven playing field where the

Party-state could reshape the terms of competition to their disadvantage. That's not to say that it always does. Part of China's success to date has been its recognition of the power of market forces, the importance of private enterprises, foreign investment, and the need for competition to dictate broad outcomes.¹ Interference is most evident in technologically sensitive domains such as aerospace and semiconductors, where China seeks to catch up and reduce its dependence on Western suppliers (USTR 2018, US Committee on Small Business and Entrepreneurship 2019). It is also evident in sectors where state-owned enterprises continue to play an outsized role, such as chemicals and steel, or where there are possible spillover effects for social stability or military applications, such as internet industries.²

Outside of China, the impact is felt broadly in sectors affected by industry downturns. Without state-backed support, market-oriented firms accountable directly to shareholders will need to respond immediately by cutting costs and reducing production. Chinese firms, however, have greater leeway. Because of the entwined nature of 'China, Inc.', the Party-state could decide to disperse the negative costs across a larger range of players and over a broader period of time. It may do so for industrial policy or non-economic reasons, such as limiting unemployment. Regardless, this has led to large-scale Chinese overcapacity in various sectors, most notably steel and aluminium. The adjustment costs are therefore borne disproportionately by foreign firms, while 'China, Inc.' helps keep Chinese firms afloat.

Why then has the WTO proven incapable of dealing with these issues? Three major problems require closer analysis.

The first problem is the incompleteness of the rules themselves. The last major updating of global trade rules took place in 1994, at a time when the current form of 'China, Inc.' was largely unknown. The rules are adequate for issues where Chinese trade policies resemble those of other Asian export-led economies or transition economies, such as local content requirements, but they were not written with the 'China, Inc.' structure

1 For a comprehensive description of private market forces, rather than the state, drove growth for much of the reform era, see Lardy (2014).

2 For an account of the growing importance of the state in the Xi era, see Lardy (2019).

in mind. Nor have they been updated to deal with new, and increasingly important, phenomenon such as digital trade and data protectionism arising out of an internet economy with intensive state controls (Meltzer 2019, Janow and Mavroidis 2019).

Second, the WTO rules were written to discipline measures or actions enacted by governments or actors directed or entrusted by governments. However, in the case of 'China, Inc.', often times the troubling action arises out of an informal understanding that is not captured in any written, or possibly even spoken, form. There may not be anything formally on paper requiring a foreign firm to enter into a joint venture or to transfer certain technology, but through pattern recognition, foreign firms have come to learn that there may be negative consequences for not doing so. Or there may not be any formal direction requiring a Chinese bank to lend on preferential terms to a Chinese enterprise in a priority sector, but a senior bank official knows implicitly that he ought to do so, given that his future career prospects will be determined by Party officials. These types of actions are difficult to challenge, given the lack of clear evidence necessary to support a WTO case. Indeed, in the one major case that the US has brought on intellectual property enforcement to date, the WTO ruled that US lawyers failed to offer sufficient evidence to back up parts of their claim.³

Finally, even if the rules are clear and the evidence is sufficient to prevail in a legal challenge, the nature of WTO remedies poses a third dilemma. Unlike other judicial institutions, the WTO Dispute Settlement Body lacks the authority to issue retrospective remedies for past harm. It can only authorise prospective damages in the event that the losing party fails to bring its actions back in line with the law within a reasonable period of time. This creates ample opportunity for governments to game the system by taking advantage of the 'free pass' for breach prior to the conclusion of the dispute. This is most effective in industries with high fixed costs and long product cycles, or where supply chains are relatively 'sticky'. Even when foreign governments have prevailed against China at the WTO, the industrial policy underlying the illegal act may still manage to accomplish much of its goals, as a result of this free pass.

3 See the Panel Report in *China – Measures Affecting the Protection and Enforcement of Intellectual Property Rights*, DS362.

The uncomfortable truths confronting trade multilateralism

After initially engaging with multilateral processes to address the trade issues arising out of steel overcapacity, the Trump administration concluded that multilateral approaches were likely too slow and ineffective to tackle the ‘China, Inc.’ challenge. Instead, they undertook a calculated risk that unilateral pressure, ratcheted up over time, would be more effective at changing Chinese behaviour. If it failed to do so, then they reasoned that it would be better to force a gradual decoupling of the two economies, rather than continuing to allow lopsided access to a strategic rival in technology and data.

Whether this calculated risk will pay off or not remains to be seen. Regardless of outcome, however, trade multilateralism will have been severely weakened by the Trump administration’s actions. For those seeking a return to a rules-based system, there are five uncomfortable truths that they must confront.

First, the WTO negotiating process has become too ossified and ineffective. Even if the WTO moves toward more plurilateral trade agreements, these are not likely to change the underlying structure of ‘China, Inc.’ Instead, China can simply sit them out, as the WTO’s plurilateral agreements require that benefits be extended on a most-favoured nation basis. Some new modality for updating trade rules must be developed beyond the existing available options.

Second, the remedies available against repeat violations are too weak for the WTO dispute settlement system to function as an effective deterrent. There are no consequences for presenting incomplete notifications of one’s subsidies. Nor are there any for repeat violations. Unless remedies are strengthened, governments will remain tempted to resort to power, rather than law, for any serious trade tensions that are time-sensitive.

Third, the rules provide too much leeway for countries to hide behind the cover of ‘developing country status’ or ‘national security’ to escape their obligations. Allowing adjudicators to opine on such issues, however, leaves a government open to accusations that it has ceded sovereignty. While prior generations of trade negotiators may have purposely sought to leave such terms ambiguous in the WTO agreements, the terms

require greater clarity through further negotiations. Otherwise, they threaten to become the exceptions that swallow the rule.

Fourth, it is unlikely that the issues can be addressed through bolder, more aggressive use of WTO litigation. Drawing on testimony offered by Hillman (2018), some have called for the US and its allies to build a large-scale non-violation, nullification and impairment (NVNI) complaint against China. Obtaining the evidence necessary to prevail on a NVNI claim will prove very difficult, as firms whose future growth is dependent on China will be reluctant to cooperate. Even if this information is forthcoming, the WTO first must find a way out of the Appellate Body crisis before its judicial arm will be able to function properly once more.

Finally, any hope that regional trade agreements (RTA), such as the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP), can serve as 'building blocks' for establishing new rules that will eventually work their way into becoming multilateral WTO rules is misplaced. China can simply mitigate the cost of trade diversion by negotiating a competing agreement of its own. Unless the rules of origin in the CPTPP and other similar agreements are tightened and the possibility of a complementary RTA with China is foreclosed, the tactic of concluding RTAs among like-minded allies will not generate enough fear within 'China, Inc.' to spur it to embrace new rules that run contrary to its interests.

Will supporters of a multilateral trading system accept these uncomfortable truths and confront their consequences? Even if they do, can they then get leaders to make hard compromises and spark the reforms necessary for the WTO to adapt to meet the 'China, Inc.' challenge? For now, the signs are not promising. If they continue to flounder, get ready for more trade brinksmanship in the coming clash of economic systems.

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The US-China trade war has upended the old rules for international trade policy cooperation. For the first time in decades, policymakers have imposed tariffs on hundreds of billions of dollars of merchandise, disrupting global trade networks and inflicting harm on their own economies. With the latest round of bilateral negotiations breaking down without a deal, only time will tell if a cooperative solution has been permanently knocked off track or just hit a bump in the road. This collection of essays by leading economists and legal scholars reviews the origins of the US-China economic conflict, evaluates the costs of the trade war, and analyses what it means for the future of the multilateral trading system.

Beginning with China's accession to the WTO, the book explores the effects of China's global integration on US manufacturing workers, the system of WTO dispute settlement, and the implications of China's rise as a global power. Assessments of the economic costs follow; contributions quantify which countries lose the most from trade wars, discuss how firms respond to changes in import tariffs, and explain and evaluate how the costs of the trade war propagate through global value chains. The closing chapters investigate the clash of economic systems at the centre of the US-China quarrel, the quiet growth of other measures restricting market access, the unresolved question of how to limit subsidies, and the rise in uncertainty about future trade policy. These difficult challenges require resolution. Nothing less than the future of the multilateral trading system and the global prosperity it has fostered are at stake.

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