A WORLD TRADING SYSTEM FOR THE TWENTY-FIRST CENTURY

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ABSTRACT

I explore whether the world trading system of the twentieth century can be adapted to address the challenges of the twenty-first. I first develop an understanding of how GATT functioned during the twentieth century, and which features of the economic environment were most important in determining its success. I then examine a list of changes in the global economy that are sometimes identified as warranting changes in the design of the GATT/WTO. I argue that the "terms-of-trade" theory of trade agreements provides a compelling framework for understanding the impact of GATT in the twentieth century, and I show that when viewed through this lens, the rationale for GATT's design features transcend many, though not all, of the current challenges facing the WTO.

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1. Introduction

Individuals are the ultimate drivers of globalization, but governments set the rules of the game. And the rules can be very important to the outcome. This paper, composed of a selection of chapters drawn from a longer monograph (Staiger, 2021), is about the rules that guided the global economy of the twentieth century, how those rules came about, the logic of their design, their successes and failures, and whether they are adequate for the twenty-first century.

I focus on the World Trade Organization (WTO). The WTO – and before it, its predecessor, the General Agreement on Tariffs and Trade (GATT) – is where governments come to agree on the rules of globalization, or at least the multilateral rules that apply to all 164 member countries and their preferential trade agreements (PTAs). These rules are intended to solve problems that would arise under "the law of the jungle," and they define the constitution of the global trade order.

The GATT/WTO is "member-driven," accepting the sovereign right of each country to define its policy preferences, and seeking mutually advantageous trade liberalization as judged by the member governments. As an institution, the GATT/WTO has traditionally been about "shallow integration," with a focus on negotiations to reduce tariffs and other trade impediments imposed at the border rather than on direct negotiations over behind-the-border measures. And it has been very successful, hosting eight rounds of multilateral negotiations beginning with the first GATT (Geneva) Round of 1947 and culminating in the Uruguay Round which created the WTO in 1995. The commitments made in these GATT rounds helped to dismantle the web of highly restrictive trade protections that had been erected in the 1920's and 30's, and ushered in a wave of globalization over the next 60 years that transformed the world economy. By the time the results of the Uruguay Round had been fully implemented, average tariffs on industrial goods had been reduced to below 4% on an ad valorem basis and quantitative restrictions were largely eliminated (WTO, 2007, Bown and Crowley, 2016).

But during the last several decades the ground has shifted, and the WTO's Doha Round, begun in 2001 and now suspended, has disappointed. Two changes to the world economy over this period stand out above all others as emblematic of this shifting landscape.

First, the latest wave of globalization has brought the large emerging and developing economies, led by China, from the background of the world economy to its forefront. Figure 1.1 illustrates this reversal of relative importance by GDP. In

1980 the emerging and developing economies accounted for 37 percent of the share of world GDP, with advanced economies making up the remaining 63 percent. By 2007 these shares were 50/50, and today the share of the world's GDP captured by emerging and developing countries is approaching 60 percent.
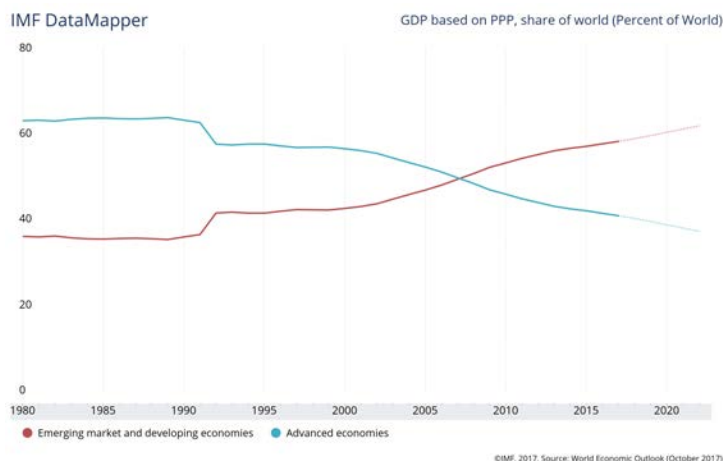
Figure 1.1 (Source: IMF World Economic Outlook, October 2017)

And second, with the rise of offshoring and global supply chains, this latest wave of globalization has also changed the nature of trade itself. In the early years of GATT, international trade amounted to the international exchange of finished or largely finished goods. Today much of international trade consists of the movement of parts and components and associated services from one country to another and back again for assembly, as exemplified by the sourcing decisions involved in the production of the Boeing Dreamliner illustrated in Figure 1.2.
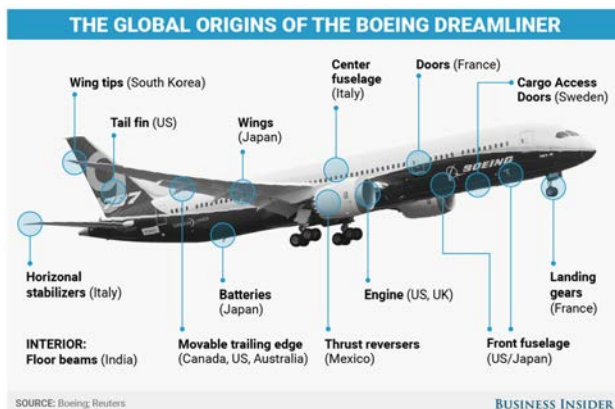
Figure 1.2 (Source: Boeing; Reuters/Business Insider)

Against this backdrop, multilateralism is stumbling, and with it the WTO, whose legitimacy is being questioned as never before. Of course, the world has also just experienced four years of Trade in the Trump era, marked by the provocative and ubiquitous Trump Trade Tweets, of which below is but one example:

But the challenges faced by multilateralism in general and the WTO in particular are about something much more subtle – and far bigger – than Trump.

Recent decades have witnessed a clear evolution away from the shallow approach to integration pioneered by GATT, and toward a preference for "deep" integration with a focus on the trade effects of regulations and other behind-the-border measures and increasingly with the goal of regulatory harmonization as an end in itself, as exemplified by regional and mega-regional negotiations (some ongoing, some completed, some failed) over the Transatlantic Trade and Investment Partnership, the Comprehensive Economic and Trade Agreement, and the Trans Pacific Partnership; and to a lesser extent this evolution can be seen in the transition from GATT to the WTO. China's entry into the world trading system, formalized with its 2001 accession to the WTO, has challenged an approach to globalization that was designed fundamentally with market economies in mind. More recently the increasing importance of digital trade has made WTO rules, crafted in a largely pre-digital world, look out of date. And most recently the world has witnessed a strong backlash within many countries against globalization itself, from those who have not shared in the gains, and from those who feel

that the sovereignty of their governments has been eroded.

In the face of all these challenges, is multilateralism dead? I argue that the prognosis for multilateralism is not as dire as that, though I will suggest that the multilateralism the world has experienced over the past 75 years may be unusual, and that multilateralism may now be entering a period of hibernation until more favorable conditions for its ascendancy once again return.

Do we need a new global trade order for the twenty-first century? That is difficult to say. But what seems clear is this: meeting globalization's challenges in the twenty-first century will require a nuanced response capable of addressing multilateralism's current shortcomings, and to succeed we need a correct diagnosis of those shortcomings. For such a diagnosis, it is imperative to understand why GATT worked, the economic environment it is best suited for, and whether the changes in the economic environment in recent decades imply the need for changes in the design of the GATT/WTO, or possibly a new approach to trade agreements altogether, or rather simply better use of the agreements already in place. It is such an understanding that I attempt to provide.

What's at stake? The future path of globalization is at stake. Which international institutions will set the rules of globalization is at stake. What trade-offs we will face in our globalized world is at stake. In short, the stakes of getting this right are very high.

In this introductory chapter I sketch in broad and intuitive terms the main themes that I develop in greater detail in later chapters here and more fully in Staiger (2021). While those chapters provide the technical detail necessary for the formal arguments that underpin many of the statements that I make here, my intent in this chapter is to provide an overview of these themes at a level that would be accessible to anyone with an undergraduate Econ 1 background.[1] As such, there are no equations in this chapter, and there is nothing beyond the bare minimum in terms of formal notation. Nor have I included in this chapter the qualifications that a careful treatment would demand or citations to the relevant literature (beyond citations for a reproduced figure or quotation): those also appear in later chapters here and in Staiger (2021). Instead, in this chapter there are only words, graphs and a few plots of data to convey the main ideas.

The purpose of a trade agreement   I start with a key point: from the perspective of economics, the legitimacy of the WTO as an international institution

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[1]Indeed, the material in this chapter comes from a pair of public lectures I gave in Calgary (the 2018 Dr. Frank Anton Distinguished Lecture) and Turin (the 2018 Luca d'Agliano Lecture).

is not built on the case for free trade; rather, it is built on the case for internalizing negative international policy externalities. This is an important point, because the case for free trade, while one of the most powerful insights in all of economics, relies on a set of very special assumptions which are unlikely to hold in the real world across the WTO's diverse membership; and the case for internalizing negative externalities is far more general by comparison.

To understand this point, it is useful to begin from the basics of industry-level supply and demand analysis in a closed economy. This is reproduced in Figure 1.3, which with the quantity of good a measured on the horizontal axis and its price measured on the vertical axis, depicts a downward-sloping demand curve labeled D_a and an upward sloping supply curve labeled S_a whose intersection determines the market-clearing price of good a in the closed economy, labeled p_a^0. Also depicted in Figure 1.3 is the standard measure of economic welfare generated by this industry: the sum of consumer surplus (the shaded area below the demand curve and above the market-clearing price) and producer surplus (the shaded area above the supply curve and below the market-clearing price).
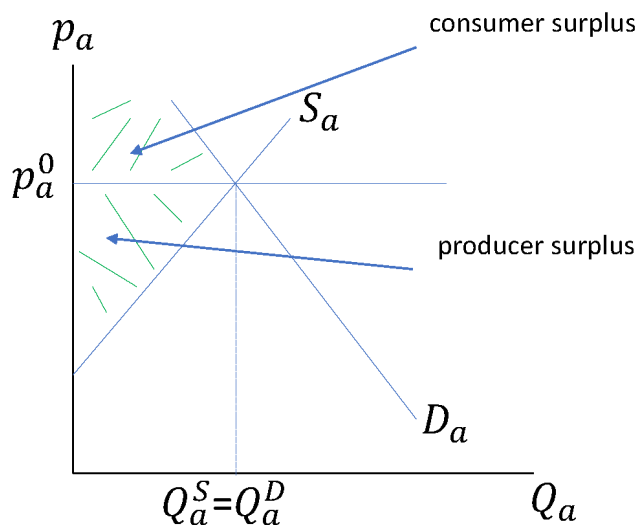

Figure 1.3

Suppose now that this country opens up to trade, and in particular that it is a small open economy trading freely with the world at a world price for good a that is below the closed-economy price p_a^0 depicted in Figure 1.3. This situation is depicted in the two panels of Figure 1.4.

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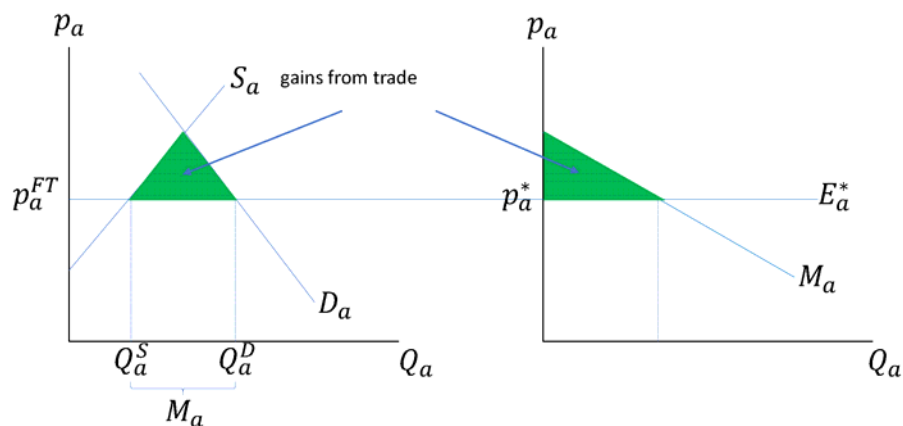
Figure 1.4

The left panel of Figure 1.4 displays the same information as Figure 1.3 – that is, the country's demand and supply curves for good a – but now with the lower price for good a that prevails in the country under free trade, p_a^{FT}. As the left panel depicts, at this lower free-trade price the economy's quantity demanded for good a increases (we move down the downward-sloping demand curve) and its quantity supplied of good a decreases (we move down the upward-sloping supply curve), and the economy makes up its shortfall of supply relative to demand at the free-trade price by importing the difference, M_a, from the rest of the world. And at this lower free-trade price, the economy's consumer surplus has increased and its producer surplus has decreased relative to the closed-economy magnitudes depicted in Figure 1.3, resulting in the net increase in consumer-plus-producer surplus depicted by the shaded triangle in the left panel of Figure 1.4 and labeled "gains from trade." This is the classic welfare gain from free trade that is taught in every introductory economics course.

The right panel of Figure 1.4 packages this information in a more compact form. This panel depicts the country's downward sloping import demand curve (its quantity demanded minus its quantity supplied), labeled as M_a; and it depicts the foreign export supply curve that this small country faces, labeled as E_a^*, which is horizontal (infinitely elastic) at the world price p_a^* earned by foreign exporters. The gains from free trade are given in this panel by the shaded area under the country's import demand curve and above the world price. Finally, notice that the country's price of good a depicted in the left panel of Figure 1.4, p_a^{FT}, is the same as the world price depicted in the right panel of Figure 1.4, p_a^*, reflecting the fact that in Figure 1.4 the country trades freely in good a with the world.

Now suppose that this country places a tariff τ_a on its imports of good a. This will not alter the world price of good a, p_a^*, owing to the small size of the country under consideration and the fact that it is therefore a price taker on world markets. But the tariff will raise the domestic price of good a to a price above p_a^{FT}, say p_a^1, the implications of which are depicted in the three panels of Figure 1.5.
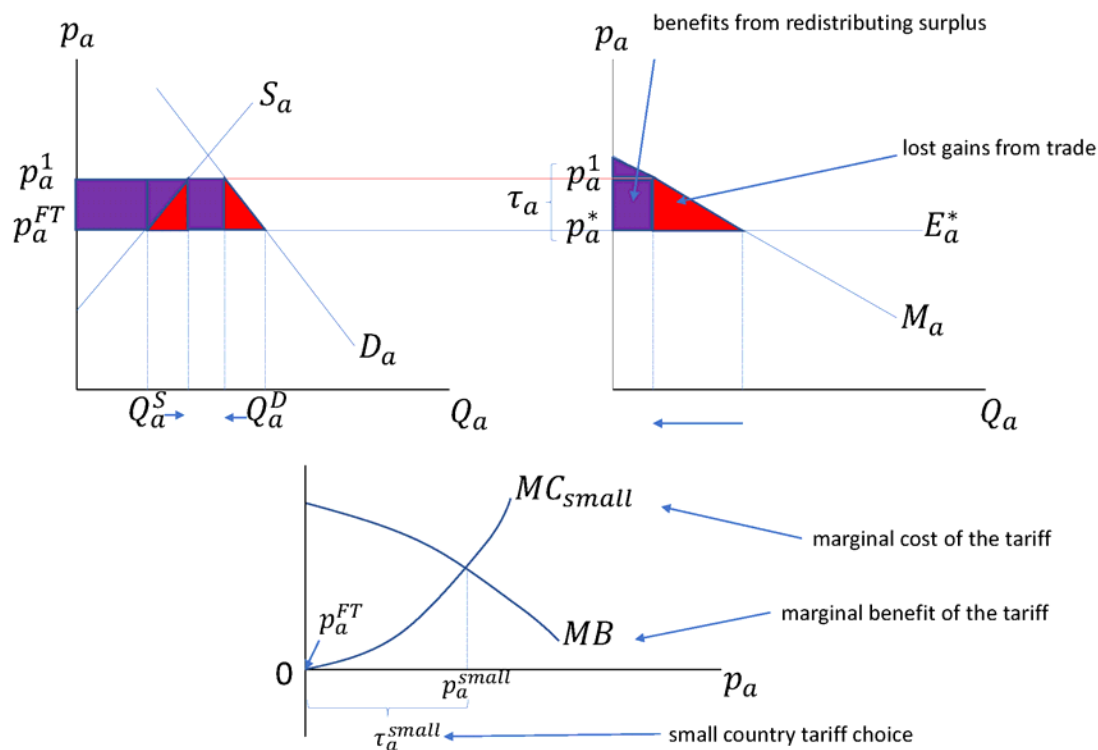
Figure 1.5

The top left panel of Figure 1.5 depicts the changes in welfare that are brought about by the imposition of the tariff. Because the tariff has increased the domestic price of a, consumer surplus in the economy is reduced, from the area below the demand curve and above the free-trade price p_a^{FT} to the smaller area below the demand curve and above the higher, tariff-distorted, price p_a^1. By itself this reduction in consumer surplus is unambiguously bad for the country. But there are two offsetting effects that also need to be considered.

First, producer surplus rises with the higher domestic price of a, from the area above the supply curve and below the free-trade price p_a^{FT} to the area above the

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supply curve and below the tariff-distorted price p_a^1: the implied redistribution of surplus from domestic consumers to domestic producers in industry a is given by the shaded trapezoid in the top left panel of Figure 1.5. Depending on how the country feels about this redistribution (e.g., is it worth it to have consumers pay higher prices for good a and give up some consumer surplus so that producers of good a can earn higher incomes, assuming that a better way to help producers of good a cannot be found?), it could be either a good thing for the country or a bad thing. And second, some of the lost consumer surplus is converted into tariff revenue: the implied conversion of consumer surplus into tariff revenue is given by the shaded rectangle (with dimensions $\tau_a \times M_a$) in the top left panel of Figure 1.5. Depending on how the country feels about the conversion of consumer surplus into tariff revenue (e.g., is it worth it to have consumers pay higher prices for good a so that tariff revenue can be collected to fund the provision of public goods, assuming that a better way to fund government services cannot be found?), this could also be either a good thing for the country or a bad thing.

Finally, there *is* a portion of the lost consumer surplus that simply disappears, as measured by the two triangles of shaded area in Figure 1.5: this is the "dead-weight" efficiency loss associated with the tariff, and it forms the crux of the economist's case for free trade. If the redistributions of surplus caused by the tariff that I have described above are not valued by the country – that is, if consumer surplus, producer surplus and tariff revenue are all valued by the country in the same way, so that their distribution across these three components is irrelevant to the country's overall welfare – then all that the country has accomplished with a tariff is to create dead-weight efficiency loss and thereby hurt itself by reducing its gains from free trade. This case can be seen directly from the top right-hand panel of Figure 1.5, where the shaded triangle represents the lost gains from trade associated with the imposition of the tariff, with the shaded trapezoid then representing the (smaller) gains from trade that remain. In this case, it is clear that free trade would be the best (welfare maximizing) policy for the country.

On the other hand, if the country *does* value the redistribution of surplus it has orchestrated with its tariff, then the size of the shaded trapezoid depicted in the top right panel of Figure 1.5 *understates* the value of the country's gains from trade under the tariff, because it overstates the value to the country of the lost consumer surplus and understates the value to the country of the gains in producer surplus and/or tariff revenue. In this case, as a result of this redistribution the welfare that the country experiences with the tariff could then be larger than the welfare that it experiences under free trade.

The upshot is that the country may gain from a tariff via the redistributive impacts of the tariff that I have described above, but there is also an efficiency cost that has to be weighed against any such gain. This trade-off is depicted in the bottom panel of Figure 1.5, which displays the domestic price of good a on the horizontal axis and the marginal benefit and marginal cost to the country of a higher tariff – and therefore of a higher domestic price of good a – on the vertical axis. As depicted, the marginal cost of the tariff is increasing as the tariff rises above free trade (zero) and the domestic price p_a rises above the free-trade price $p_a^{FT} = p_a^*$, reflecting the increasing size of the dead-weight loss triangles depicted in the top panels of Figure 1.5 that would occur as the tariff (and hence the domestic price of good a) is increased. And in this bottom panel I have illustrated the case where the country does indeed value the redistribution of surplus triggered by its tariff but does so at a decreasing rate, which then implies that the marginal benefit of the tariff starts out at a strictly positive level and declines as the tariff is raised to higher levels. The optimal tariff choice for this country is determined where the marginal benefit curve crosses the marginal cost curve in the bottom panel of Figure 1.5, and I have labeled this tariff choice τ_a^{small} to reflect the fact that I am considering here a country that is small in world markets.

I now come to a crucial observation: if it is accepted that each country has the sovereign right to define its own preferences over its policy choices, and if the country under consideration chooses the tariff τ_a^{small} unilaterally as I have depicted this choice in the bottom panel of Figure 1.5, and if all other countries of the world are also small in world markets and make analogous unilateral tariff choices given their policy preferences, then these tariff choices will be *internationally efficient* relative to the policy preferences of each country, and there is nothing for a trade agreement to do! This is because, as Figure 1.5 reflects for the country under consideration, each country will have then set its tariff at a level where the marginal benefit to the country of a slightly higher tariff would be just offset by the marginal cost to the country of a slightly higher tariff. And owing to the fact that the country is small on world markets so that its tariff choice does not impact the world price p_a^*, the tariff revenue associated with τ_a^{small} will be collected entirely from the country's own consumers who face higher domestic prices, *not* from foreign exporters. As a consequence, there are no benefits or costs of the country's slightly higher tariff that would be borne by the rest of the world – and hence *no international externalities associated with its tariff choice* – ensuring that each country's unilaterally optimal tariff choice will then also be optimal from the point of view of the world as a whole.

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Evidently, the world I have just described could be riddled with tariffs, and yet there is nothing that a trade agreement could – or should – do about this. What, then, is the purpose of the trade agreements that we observe? One possibility is that, while countries have the sovereign right to define their own policy preferences, they may have difficulty committing to policies that reflect these preferences, and they might then seek trade agreements as external commitment devices to help them avoid the temptation to choose trade protection.

But there is another possibility that I emphasize here, and that becomes apparent once an assumption that I have thus far maintained is relaxed; namely, the assumption that the country under consideration is small in world markets. To illustrate, I now revisit this country's unilateral tariff choice, but under the assumption that the country is *large* in world markets. This is illustrated in Figure 1.6.
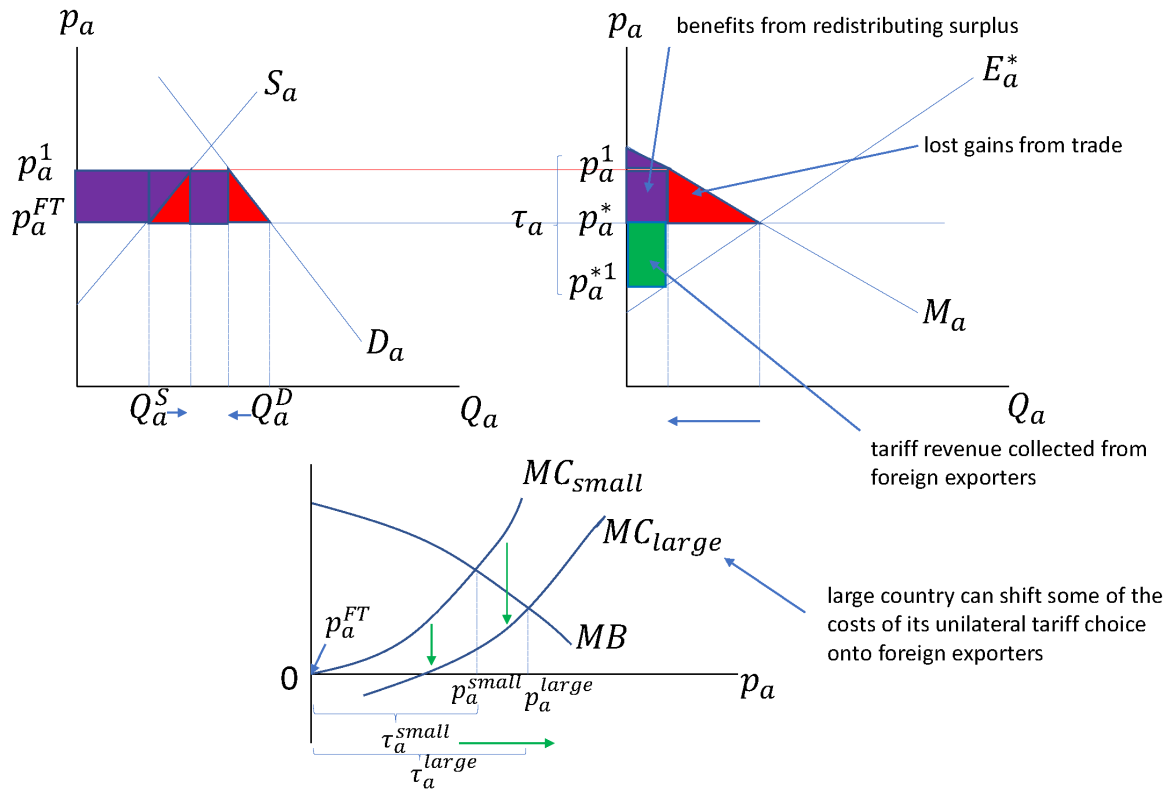

Figure 1.6

The key difference between the large-country tariff choice depicted in Figure

1.6 and the small-country tariff choice in Figure 1.5 can be seen by comparing the top right panels of each figure: the foreign export supply curve E_a^* is horizontal in Figure 1.5 but it is upward sloping in Figure 1.6, reflecting the fact that when the country under consideration is large it is not a price-taker on world markets, and its tariff can therefore impact the world price p_a^*. Put differently, when the country under consideration is large, foreign exporters will accept a lower price p_a^* in the face of the country's tariff τ_a in order to continue to sell into the country's market. And this means that a portion of the tariff revenue collected by the country is collected not from its own consumers, but from *foreign exporters*.[2]

The top right panel of Figure 1.6 depicts the drop in the world price to p_a^{*1} that accompanies the increase in the country's domestic price to p_a^1 when the (now large) country imposes a tariff t_a on imports of good a. The tariff revenue collected from foreign exporters corresponds to the shaded rectangle between the free-trade world price p_a^* and the lower world price p_a^{*1} that prevails after the tariff has been imposed: the difference between p_a^* and p_a^{*1} is the amount of the tariff that foreign exporters "absorb" via a price drop on each unit of good a that they export to this country. This tariff revenue was not present in the small-country case depicted in Figure 1.5 – because in the small-country case foreign exporters are unwilling to lower their price in order to maintain sales in the small-country market, hence the infinitely elastic foreign export supply curve that the small country faces – and the presence of this new source of tariff revenue has a key implication: as the bottom panel of Figure 1.6 depicts, the tariff revenue collected from foreign exporters *offsets* to some degree the deadweight efficiency costs to the country associated with its tariff, shifting down the marginal cost curve for the tariff of a large country relative to the marginal cost curve for a small country, and leading to the *higher tariff choice* τ_a^{large}.

As a result, and independent of the underlying policy preferences of countries, the tariffs chosen unilaterally by large countries are *inefficiently high*, and they are inefficiently high due to the *negative international externality* that is created when a large country suppresses foreign exporter prices with its tariff increases, thereby shifting some of the costs of its tariff onto foreign exporters. The purpose of a trade agreement is then to internalize these negative policy externalities, and thereby to reduce tariffs and expand trading opportunities. By addressing these

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[2]While the Trump Administration made a point of emphasizing the tariff revenue it collected from foreigners with its trade actions, a number of recent studies have cast doubt on this claim, at least if the tariffs are in place for only a short period of time. I discuss the findings of these studies in the context of the material presented in chapter 5 of Staiger (2021a).

inefficiencies, it is possible for all countries to gain as judged by their own policy preferences from the mutually beneficial expansion of trade.

Clearly, the purpose of a trade agreement that I have outlined here – and the expectation that trade agreements expand trade volumes that derives from this purpose – has nothing to do with the case for free trade, since for my arguments to hold it is neither necessary nor sufficient that countries accept that the case for free trade applies to them. But to be relevant, these arguments do require that countries have market power (in the form of monopsony power to depress foreign exporter prices) and use it when making trade policy choices outside the confines of a trade agreement. Figure 1.7, reproduced from Broda, Limao and Weinstein (2008), provides striking support for this position (in Staiger, 2021, I discuss empirical evidence on this and related issues more thoroughly).
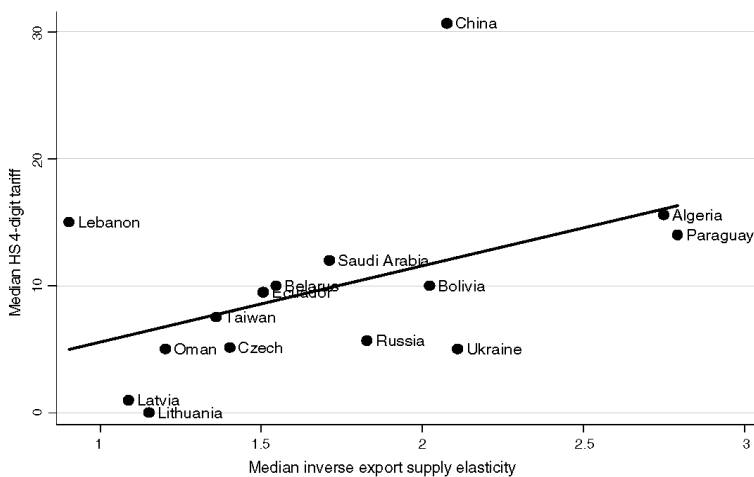
Figure 1.7 (Reproduced from Broda, Limao and Weinstein, 2008)

For 15 countries that were not at the time GATT/WTO members, Figure 1.7 plots the country's median Harmonized System (HS) four-digit industry ad valorem tariff level (vertical axis) against the median of a measure of the country's market power across these four-digit industries (horizontal axis). The measure of a country's market power in an industry is taken to be the inverse of the estimated foreign export supply elasticity faced by the country in that industry, with a truly small country who faces an infinitely elastic foreign export supply curve in an industry corresponding to a market power measure of one-over-infinity or zero. The fact that the 15 country data points are spread out along the horizontal axis in Figure 1.7 over a range from 0.75 to 2.75 indicates that most countries, even

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seemingly "small" countries, possess significant market power in at least some industries. And the fact that Figure 1.7 displays a strong positive relationship between market power and the tariff levels of the countries that wield it indicates that countries do indeed use their market power when setting tariffs outside of the confines of a trade agreement.

The architecture of the GATT/WTO   If the purpose of a trade agreement is to allow countries to internalize the negative international externalities of their trade policy choices, then the fundamental legitimacy of the GATT/WTO can be assessed with the answer to a single question: Is the GATT/WTO well-designed to serve this purpose?

Generally, designing an effective institution to address an international externality is exceedingly difficult (think climate change). But there is a particular structure to the international externality embodied in the arguments I have reviewed above that makes this task more manageable in the case of a trade agreement, at least along some dimensions. The structure that I am referring to is this: the international externality that is created when a large country suppresses foreign exporter prices with its tariff increases is a *pecuniary* externality, traveling through international prices and therefore *markets*. A pecuniary externality normally does not create an inefficiency, but it does when it is combined with market power, which the large-country condition assures. And as this externality travels through markets, it can to some degree be shaped – and in principle mitigated – by specific features of institutional design that serve to alter the transmission mechanism of the externality, a feat that would be far more difficult if not impossible for international *non-pecuniary* externalities, such as those caused by an increase in the global carbon stock that are transmitted through the atmosphere.

What are the key features of GATT/WTO design? And can these features be seen to mitigate the international policy externality at the core of the problem for a trade agreement to solve? The two pillars of the GATT/WTO architecture are non-discrimination and reciprocity. Non-discrimination requires that tariffs abide by the most-favored-nation (MFN) principle, according to which imports of the same product from different countries face the same tariff in a given market. Reciprocity refers to an ideal of balanced changes in tariffs across countries whereby, as a result of these tariff changes, each country experiences a change in foreign access to its markets and implied import volume which is equivalent in value to the change in its access to foreign markets and implied export volume.

In a multi-country world, the MFN principle helps to keep the structure of the

international trade policy externality as simple as in a two-country world. To see why, consider the discussion above regarding the purpose of a trade agreement. One way to interpret this discussion is from the perspective of a two-country world, where the importing country under consideration imports good a from a single foreign exporting country and imposes the tariff τ_a on imports of good a from that country. But the discussion is equally valid when there are many foreign exporting countries, provided that the country under consideration abides by MFN and imposes a single tariff τ_a on imports of good a independent of which foreign exporting country those imports come from, because in that case there is still just a single world price through which the international externality associated with the choice of τ_a will travel. This simplicity would be destroyed in a multi-country world if the MFN principle did not apply, because with the importing country imposing discriminatory tariffs there would then be multiple world prices for good a – one for each foreign exporting country facing a distinct level of the tariff on its exports of good a to the importing country – and therefore multiple, distinct paths through which the international policy externality could travel.

With MFN preserving the simple structure of the international trade policy externality described above, can reciprocity then be seen as a way to mitigate these externalities? I now argue that at a basic level the answer is "Yes." This is because, in effect, reciprocity defines a measured, *proportionate response* to a country's trade policy changes by its trading partners that *keeps each country facing the trade-offs of a small country*, and thereby converts the logic of a large country's unilateral tariff choices depicted in Figure 1.6 into that of a small country as depicted in Figure 1.5. And for a member-driven institution, where what is important is not so much *what* policies are chosen by its members but rather *how* those policies are chosen, this feature goes a long way to explaining the appeal of the design of the GATT/WTO for addressing the international policy externalities of its member countries.

To see this, I return to the large-country tariff choice depicted in Figure 1.6, but suppose now that the importing country under consideration understands that the foreign exporting country (or countries) will respond reciprocally to any tariff change that it initiates. Figure 1.8 illustrates the implications of this anticipated reciprocal tariff response from the foreign country.

The new element in the top panels of Figure 1.8 relative to the top panels of Figure 1.6 is contained in the top right-most panel of Figure 1.8, which depicts a reciprocal tariff response by the foreign country on a good b that it imports from the country under consideration. This tariff response is labeled in the figure as

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τ_b^*. The response is *reciprocal*, in that it corresponds to a measured, *proportionate response* to the tariff τ_a imposed by the importing country under consideration: and if calibrated to do so, the tariff τ_b^* can, for the foreign country, collect exactly the same amount of tariff revenue from its trading partner's exporters that its trading partner is collecting from its exporters with the tariff τ_a.[3] In Figure 1.8, this equivalence is reflected by the fact that the area of the shaded rectangle in the top middle panel of Figure 1.8, which represents the tariff revenue that the country under consideration collects from foreign exporters with its tariff τ_a, is equal to the area of the shaded rectangle in the top right-most panel of Figure 1.8, which represents the tariff revenue that the foreign country collects from the exporters of the country under consideration with its reciprocal tariff response τ_b^*.
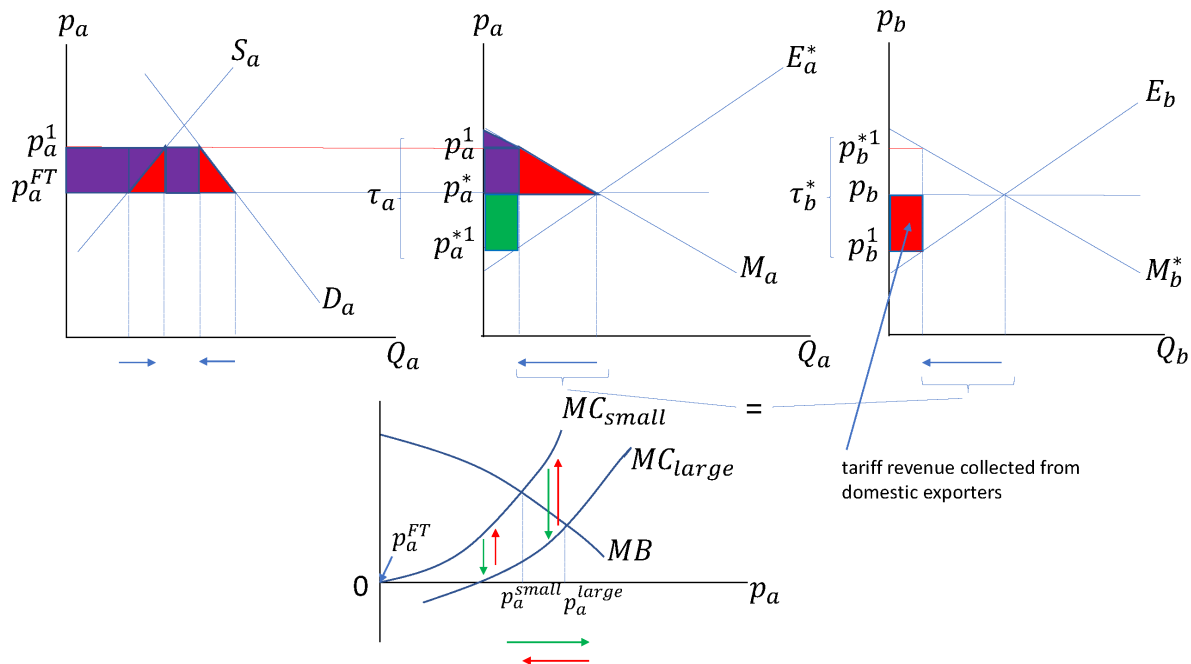
Figure 1.8

The implications of this tariff response for the tariff choice of the large importing country under consideration are depicted in the bottom panel of Figure 1.8. As shown there, the ability of this country to collect (net) tariff revenue from

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[3]In chapter 4 (see note 40), I confirm that this feature is implied by the definition of reciprocity that I introduced just above.

foreign exporters – which caused the downward shift in the marginal cost curve of the large country's tariff relative to that of a small importing country, and which led to the inefficient unilateral tariff choices of the large country – is neutralized by the reciprocal tariff response of the foreign exporting country and the tariff revenue it collects from the exporters of this country, with the result that the large importing country under consideration faces the trade-offs of a small country and, like the small country, makes internationally efficient tariff choices.

In short, the legitimacy of the GATT/WTO as the multilateral institution that sets the rules of the global trade order can be defended on the grounds that its foundational principles of non-discrimination and reciprocity are designed to induce large countries to make the tariff choices that they would make if they were small countries, and thereby to induce all countries to eliminate market power considerations from their tariff choices. By serving this function, it can be argued that the GATT/WTO helps its member governments solve the fundamental trade agreement problem and achieve the international efficiency frontier.
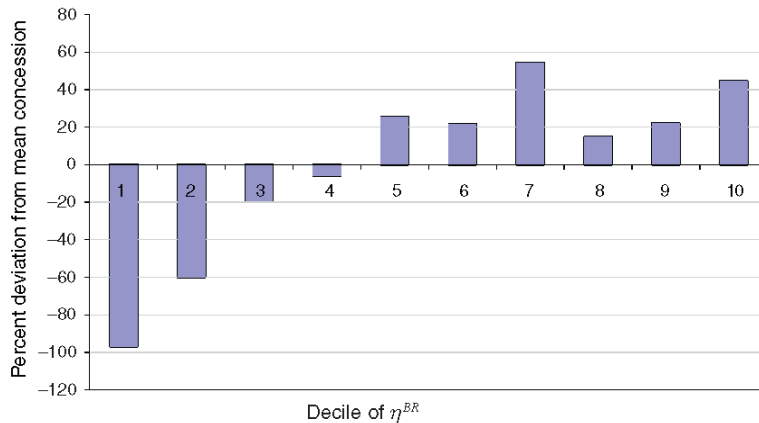
Figure 1.9 (Reproduced from Bagwell and Staiger, 2011)

If this argument is correct, and if the GATT/WTO really does serve this function, then the tariff cuts that countries agree to when they join the WTO should reflect these market power considerations, with smaller tariff cuts occurring where market power is low and larger tariff cuts occurring where market power is high. Figure 1.9, reproduced from Bagwell and Staiger (2011), provides support for this position, focussing on five countries that joined the WTO subsequent to its creation in 1995 (I discuss the findings of this paper in greater detail in chapter

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3). In this figure, a measure of the market power wielded by these countries at the six-digit HS industry level (denoted as η^{BR} in the figure) is used to distribute the products into 10 bins by decile of market power along the horizontal axis, with the lowest decile of market power on the left and the highest decile of market power on the right; and the tariff cuts (expressed as percent deviations from the mean tariff cut) that these countries agreed to when they joined the WTO are measured on the vertical axis. The fact that Figure 1.9 displays a strong positive relationship between market power and the tariff cuts that countries agree to when they become WTO members is consistent with the position that the GATT/WTO is indeed helping to induce large countries to make the tariff choices that they would make if they were small countries.

The implications of the GATT/WTO reciprocity principle can also be seen in the responses elicited by the recent tariff actions of the Trump Administration on imported steel and aluminum. For example, in a March 2 2018 article, the New York Times described the European Union (EU) countermeasures in these terms:

NYTimes March 2 2018
Trump's Tariffs Prompt Global Threats of Retaliation

... The European Union detailed a three-step plan to penalize \$3.5 billion of American trade — the same amount of European steel and aluminum the bloc estimates would be harmed by the planned tariffs. It proposed taxing American exports including bourbon, bluejeans, orange juice, cranberries, rice and motorcycles. The European Union could then ... bring a case against the United States at the World Trade Organization.

A European Union official said that the bloc had been preparing for the announcement for months and that everything was in place for a swift, proportionate response. ...

The reciprocal ("proportionate") tariff response of the EU is in line with the response envisioned under GATT/WTO rules to a unilateral increase in tariffs such as that initiated by the Trump Administration. As Figure 1.8 suggests, such a response serves to prevent the United States from using these tariff actions to increase the tariff revenue that (on net) it collects from foreign exporters; and

facing the trade-offs of a small country, if the United States still wants to raise its tariffs in the face of this reciprocal response, then according to the logic I have described above it is internationally efficient for the United States to be allowed to take these tariff actions.

Notice too that, contrary to how it might appear, the US tariff action and the EU response described by the March 2 New York Times article do not, as far as they go, constitute the outbreak of a trade war. Rather, in limiting the EU's response to be in line with the reciprocity principle, this is how the GATT/WTO system works to *avoid* a trade war. The US Council of the International Chamber of Commerce stated as much with regard to the novel role played by a fledgling GATT in 1955 when, in the context of US actions restricting trade in dairy products and European responses to those actions, it observed that:

> The Organization's control over countermeasures of this kind enables it to keep such measures within reasonable limits: to allow countermeasures commensurate with the action which occasions them; and to hold in check emotional reactions which might result in punitive measures by countries injured against the country responsible for the injury. The control over countermeasures is a check on the development of trade wars. (US Council of the ICC, 1955)

From this perspective, what *does* look like the beginnings of a trade war was reported in the New York Times on March 3:

Escalating Trade Fight, Trump Threatens Higher Taxes on European Cars

By EMILY COCHRANE New York Times MARCH 3, 2018

WASHINGTON — President Trump warned on Saturday that he would apply higher taxes on imported European cars if the European Union carried through on its threat to retaliate against his proposed stiff new tariffs on steel and aluminum.

"If the E.U. wants to further increase their already massive tariffs and barriers on U.S. companies doing business there, we will simply apply a Tax on their Cars which freely pour into the U.S.," Mr. Trump wrote on Twitter from Florida, where he was spending part of the weekend. "They make it impossible for our cars (and more) to sell there. Big trade imbalance!"

In the end, the EU did carry through on its threat to retaliate against the new US steel and aluminum tariffs with reciprocal tariff hikes of its own, and the

threatened further US tariffs on imported cars from the EU were never imposed. So in this case, at least, where there was an initial unilateral trade action by the United States and a reciprocal response from its injured trading partner, and there it ended, one could say that a trade war was averted; or, perhaps more accurately, especially when viewed along other trade actions of the Trump Administration that I will return to later, that it was a "one-sided" trade war.

But this raises an interesting question of its own: What keeps countries operating within this rules-based system? Since the GATT/WTO, like all international trade agreements, has no external enforcement mechanism, it can only be the "off-equilibrium" (i.e., never has to be implemented) threat of the all-out trade war that would transpire under the complete breakdown of the system itself that sustains compliance with the rules. The "self-enforcing" nature of these rules is another reason that their perceived legitimacy is critical for their success.

What about the shallow approach to integration that is the hallmark of the GATT/WTO? Can this feature of GATT/WTO design be seen as compatible with an institution whose purpose is to internalize the negative international externalities of the trade policy choices of its member countries? Could a shallow approach to integration ever hope to mitigate these externalities? Or should this approach be seen rather as a failing of the GATT/WTO, as a sign of institutional weakness, an inability to proceed sufficiently far in pursuit of globalization?

These are important questions, and their answers are complex. But there is one sense in which a clear foundation for GATT's shallow approach to integration can be seen in the arguments I have reviewed above: according to those arguments, at the dawn of the GATT only trade policies, *not domestic policies*, would have been set inefficiently. This is because it is the tariff that most directly imposes the international externality that is responsible for the international inefficiency of unilateral policy choices, and it is therefore the tariff that bears the imprint of these motives. For this reason, an approach to integration that focuses on liberalizing tariffs and other border impediments to trade, with rules that prevent countries from introducing protective domestic measures as *substitutes* for tariffs once tariffs and other border measures have been constrained by the agreement, can in principle accomplish everything that a trade agreement needs to accomplish in order to implement internationally efficient policy outcomes. As I will describe in later chapters, this is essentially the approach that the GATT/WTO has taken. From this perspective, the underlying approach of the GATT/WTO can be seen as avoiding the sharpest conflicts between globalization and national sovereignty, and indeed making domestic policy choices more effective, not less.

Finally, above I described the trade actions of the Trump Administration with regard to imports of steel and aluminum, and I noted that these actions, in combination with the reciprocal tariff response from the EU, did not constitute a trade war but were instead in line with the kinds of reciprocal tariff adjustments envisioned under the GATT/WTO design. To be clear, I was using this episode only to illustrate a specific point, not to make a blanket statement about the WTO-consistency of the Trump Administration's world view of the ideal global trading system. In fact, while US dissatisfaction with the GATT/WTO has been building for some time and certainly did not start with the Trump Administration, the Trump administration took US distaste for the WTO to a new level. For this reason, it is instructive at this point to compare the rules-based trading system of the GATT/WTO as I have described that system above against the alternative global trade order envisioned by the Trump Administration.

What was the Trump Administration's vision for the global trade order? Wilbur Ross, US Secretary of Commerce put it this way:

> "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." (Wall Street Journal, May 25 2017)

And the vision articulated by Commerce Secretary Ross was echoed in various Trump tweets, such as this one:

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Evidently, according to this vision, the purpose of trade agreements would be to achieve reciprocal free trade or, barring that, then at least a "level playing field" across countries. And as for the means of achieving this purpose, the ideal global trading system according to the Trump Administration would dispense with MFN and seek reciprocity in tariff *levels*, not in tariff changes as in the role of reciprocity in the GATT/WTO which I have illustrated in the figures above.

In short, the Trump Administration's vision for the global trade order amounts to a "Repeal and Replace" strategy, as it poses an existential challenge to the pillars of the GATT/WTO architecture. It would abandon MFN. It would emphasize a form of reciprocity that is not found in the GATT/WTO. And in seeking global free trade as the ultimate goal, it would strike at the heart of what the GATT/WTO means when it says it is a "member driven" organization. At a minimum, this vision, expressed by a US Administration in the early decades of the twenty-first century, illustrates the depth of the challenges that now confront the rules-based world trading system of the twentieth century.

The role of rules in a rules-based global trading system   I have argued above that the key design features of the GATT/WTO are consistent with an institution whose purpose is to internalize the negative international externalities of the trade policy choices of its member countries. But what difference do these rules make anyway? While it seems clear enough that in the presence of these externalities countries can gain from negotiations over their trade policy choices, what would be lost if countries engaged in "power-based" tariff bargaining to address these issues without reference to any previously agreed-upon rules?

Broadly speaking, the rules-based system of the GATT/WTO has two main potential advantages over a power-based approach to tariff bargaining. First, the rules of the GATT/WTO can *simplify* the tariff bargaining problem and make it manageable, and this can help countries negotiate to efficient policies. And second, these rules can mitigate the power of the most powerful countries, and in so doing can encourage the *participation* of weaker countries in the global trading system who might otherwise be vulnerable to exploitation by the stronger countries.

Regarding its simplifying role, I have noted that MFN simplifies the structure of the international policy externality that would otherwise arise in a multi-country world, ensuring that this externality continues to take the simple form that it would take in a two-country world. As for reciprocity, it can be seen to shape GATT/WTO tariff negotiations in two ways: it is a norm of negotiation when a tariff is to be reduced and bound at a lower level; and it is a rule that defines the

threat point for *re*negotiation when a previously bound tariff is to be raised.

If countries abide rigidly by these norms and rules, reciprocity in combination with MFN affords a dramatic simplification of the tariff bargaining problem. This is because as a norm of negotiation, reciprocity fixes the terms of exchange of market access: if it has been previously agreed that the negotiations will abide by reciprocity, then the *terms of the deal are fixed*, with countries exchanging market access concessions and implied trade volumes *one for one*. And by defining the threat point for renegotiation, reciprocity indirectly determines the extent of market access that is exchanged, through the implied requirement that this exchange is "voluntary"; that is, *the size of the deal is determined* by the negotiating party that wants the smallest deal at these terms, because if that party were pushed in the bargain to accept a bigger deal/lower tariffs than it wanted, it could always renegotiate subsequently to raise tariffs and – with reciprocity defining its threat point – in the end get the size of the deal it wanted anyway while preserving the reciprocal terms. And with the terms of the deal fixed and its size determined, there is then nothing left for countries to bargain over! In this way, MFN and reciprocity can in principle turn a potential haggling situation into a "retail store for market access." Indeed, it has been remarked by legal scholars and trade practitioners that the implied elimination of strategic behavior was a hallmark of tariff bargaining in the early GATT rounds that distinguished the GATT experience from the episodes of tariff bargaining that came before.

Regarding the role of GATT/WTO rules in mitigating the power of the most powerful countries, this role is obviously fulfilled if, as I have described above, countries rigidly abide by MFN and reciprocity in their tariff bargaining, since if under these rules and norms there is nothing left to bargain over, then there is clearly no room for the exercise of power in tariff negotiations. But even absent rigid adherence to these rules and norms, the ability of countries to exert their power in GATT/WTO tariff bargains is likely to be constrained.

For example, even if not joined by reciprocity, the MFN requirement alone still dilutes the ability of a powerful country to enjoy the benefits of its power. This is because in exerting its power to secure more-than-reciprocal tariff concessions from its bargaining partner, the non-discriminatory nature of those tariff cuts will ensure that other exporting countries siphon off part of the gain. Moreover, while reciprocity in GATT/WTO negotiations is just a norm and may therefore not hold rigidly, reciprocity in the context of GATT/WTO renegotiations enters as a rule and can therefore be counted on to hold reasonably well in that context; and this provides another mitigating force against the ability of powerful countries to get

their way in GATT/WTO tariff bargains. This is because if a powerful country pushes for better-than-reciprocal terms in an efficient bargain, its trading partner can subsequently renegotiate subject to reciprocity, either explicitly or in effect, and benefit by at least achieving the diminished size of the deal it desires at these unfavorable terms (voluntary exchange). And while this introduces inefficiencies in the bargaining outcome, the brunt of these inefficiencies will be are borne by the powerful country – because its trading partner has benefited as a result of the renegotiation that introduced the inefficiencies – and this serves as a further penalty on the powerful country for exercising its power in the bargain.

The upshot is that the rules of the GATT/WTO tend to blunt the exercise of bargaining power. But why, then, would powerful countries accept these rules? One reason is that the gains from simplifying the bargaining may be sufficiently great that powerful countries can gain directly from the rules even as their ability to exert bargaining power is constrained. But there is also a further reason that powerful countries may see it in their interest to support a rules-based multilateral trading system: by making a commitment to adhere to these rules, powerful countries can help secure the participation of weaker countries who might otherwise fear exploitation, and *all* countries can gain as a result. This possibility is illustrated for a two-country world in Figure 1.10, which builds on McLaren (1997) and is adapted from Figure 5B of Bagwell and Staiger (1999).

In Figure 1.10, the welfare of the domestic country, W, is plotted on the vertical axis and the welfare of the foreign country, W^*, is plotted on the horizontal axis. The dashed frontier depicted in Figure 1.10 represents the combinations of domestic and foreign welfare levels achievable under efficient tariff bargaining. The welfare levels at the origin of the figure, labeled $N_{\text{ex-post}}$, represent the "disagreement point" for the two countries: these are the welfare levels that the domestic and foreign countries would achieve if their tariff bargaining broke down. And the point on the frontier labeled PB is the outcome of the power-based bargain, assuming that both the domestic and the foreign country participate in the bargain and that this bargain can be represented as a Nash bargain that reaches the highest iso-Nash-Product contour (the dashed iso-Nash-Product contour labeled in the figure as $Iso\ NP$) consistent with the dashed frontier. As depicted, at the point PB both countries achieve higher welfare than their disagreement welfare levels at $N_{\text{ex-post}}$, indicating that each country does better under the agreement summarized by the point PB than it would do by walking away from the deal.
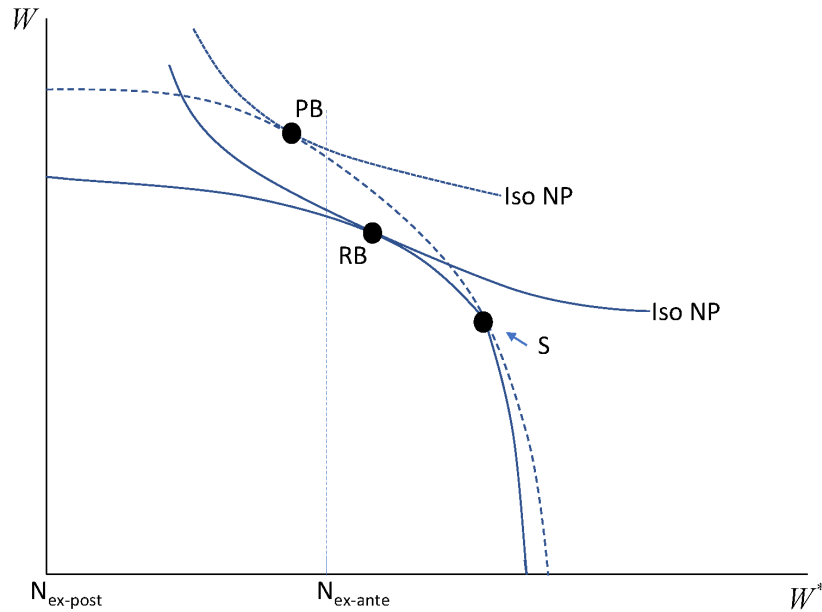
Figure 1.10

But these disagreement welfare levels may not be the relevant welfare levels for assessing whether the decision to *participate* in the bargain is worthwhile. This is because the act of showing up at the bargaining table to participate in the bargain may itself imply incurring some sunk costs which cannot then be recouped should the bargaining break down, and which therefore are not reflected in the welfare levels at $N_{\text{ex-post}}$. Under the assumption that the foreign country is the weaker, smaller, country of the two and that it experiences such sunk costs when it agrees to participate in a tariff bargain with the larger more powerful domestic country (perhaps because its exporters will sink investments into serving the large domestic-country market once it is known that the two countries have agreed to bargain), the disagreement point relevant for the participation decision – which excludes the sunk costs that would be incurred by showing up – is labeled in Figure 1.10 as $N_{\text{ex-ante}}$. The figure depicts the case where, under power-based bargaining, the foreign country does worse than if it had not shown up to the bargaining table; hence, anticipating this, it will choose not to participate in such a bargain and the two countries will be stuck at their (ex-ante) disagreement welfare levels.

This is where the commitment to a rules-based system could benefit all countries, including the most powerful countries. Here I illustrate the impact of committing to the reciprocity rule as it arises in the context of renegotiation.

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Recall from the discussion above that if a powerful country pushes for better-than-reciprocal terms in an efficient bargain, its trading partner can subsequently renegotiate subject to reciprocity, introducing inefficiencies in the bargaining outcome that are borne by the powerful country and serve to penalize it for exercising its power in the bargain. The implications of this are illustrated in Figure 1.10 by the solid welfare frontier, which lies everywhere inside the dashed frontier except at the point marked S, where each country has set its tariffs at the levels it would have chosen if it were a small country along the lines depicted in Figure 1.5, and therefore where no country is exerting bargaining power to push the deal in its favor. The Nash bargain in the presence of this reciprocity-constrained frontier would then deliver the rules-based bargaining outcome labeled RB in Figure 1.10, which marks the highest iso-Nash-Product contour (the solid iso-Nash-Product contour labeled in the figure as $Iso\ NP$) consistent with the solid frontier. As illustrated in Figure 1.10, the rules-based bargaining outcome RB penalizes the powerful domestic country and favors the weaker foreign country relative to the power-based bargaining outcome PB; but for the powerful domestic country this is no loss, since it could not get the foreign country to participate in power-based bargaining in any event. And relative to their ex-ante disagreement welfare levels, both countries now do better under the rules-based bargaining outcome RB.

The declining hegemon The discussion above suggests that the most powerful countries may benefit from a rules-based multilateral trading system precisely because they *are* so powerful. This may help explain why the United States was, along with the United Kingdom, the champion of the rules-based system at its creation in 1947 with the birth of GATT. But it is not hard to imagine from Figure 1.10 that, if the domestic country were the more powerful of the two but not so dominantly more powerful as I have illustrated in the figure, the foreign country could well choose to participate in trade bargaining even under a power-based system. And in that case, the more powerful domestic country would prefer to escape from the rules and pursue power-based trade bargaining with the foreign country (assuming that the efficiency consequences of rules-based bargaining noted above did not carry the day).

This suggests the possibility that, with the rise of the large emerging and developing economies and the decline in hegemonic status that the United States has experienced in recent decades, its enthusiasm for the rules-based system it helped to create could also wane: being far less dominant in the global economy than it was in 1947, the United States is no longer in need of a set of international

rules to help it commit not to exploit other countries in trade bargaining in order to convince those countries to engage in the global economy. And if the declining hegemonic position of the United States is indeed a primary cause of the challenges now faced by the rules-based multilateral trading system, to repair that system the world may have to wait for the rise of another hegemon. Along these lines and in the broader context of security and trade, historian/commentator Robert Kagan sees the rules-based international order as "a historical anomaly" made possible by U.S. leadership, which is now collapsing, "returning the world to its natural state – a dark jungle of competing interests, clashing nationalism, tribalism and self-interest." (Kagan, 2018).

If this is the correct diagnosis, it is full of irony. According to this diagnosis, the design of the rules-based multilateral trading system has proven effective in solving an important and still-relevant problem, yet the system will inevitably collapse. While there may be nothing fundamentally wrong with the existing rules-based system, there are certainly important improvements in the design of the rules that could be made, yet such improvements will likely do nothing to save the system. And while China is seen by many as a source of some of the greatest challenges for the rules-based trading system of the twenty-first century, if this diagnosis is correct it may be that the rise of China is the world's best hope for the return of a viable rules-based multilateral trading system.

In any case, to the extent that this diagnosis does capture the main cause of the rules-based trading system's ills, there is great value in attempting to support, preserve and improve the existing global trade order until such time as it can again thrive on its own. As noted above, the fundamental design of the rules-based multilateral trading system has proven effective in solving an important and, by this diagnosis, still-relevant problem, and it should not be allowed to wither away. By this diagnosis the shallow-integration approach of the GATT/WTO is well-designed to solve the fundamental trade agreement problem: as such, a stark trade-off between sovereignty and globalization may be avoidable, but only if the WTO is supported and its approach strengthened. Could China be the next hegemon that the WTO is looking for? Currently to many this may seem unlikely, but as its dominance grows, China may see it in its interest to more fully commit to these rules; and until that time, according to this diagnosis the WTO deserves broad support as the legitimate constitution of the global trade order.

The implications of offshoring The rise of offshoring could provide an alternative diagnosis for the current challenges faced by the rules-based trading system

to that implied by a declining hegemon, and one that is in some sense more dire. This is because in altering the nature of trade, offshoring may also have changed the nature of international price determination and the international policy externalities that are the source of the problem that the rules of the GATT/WTO are well-designed to solve. And if this is the case, then in a world economy dominated by offshoring and global value chains, new and different rules may be needed to help countries address the novel international policy externalities that arise.

This can be seen most clearly with regard to the potential implications of offshoring for the efficacy of shallow integration. Recall that according to the arguments I have reviewed above, at the dawn of the GATT only trade policies, not domestic policies, would have been set inefficiently, because it is the tariff that most directly imposes the international externality that is responsible for the international inefficiency of unilateral policy choices. This statement holds for the nature of trade that dominated most of the twentieth century, that is, the international exchange of finished or largely finished goods, where international prices are determined by the kinds of supply-equals-demand market clearing conditions that are featured in the figures described above. But when trade is dominated by specialized components, such as is the case with the production and assembly of the Boeing Dreamliner illustrated in Figure 1.2, exchanged between sellers and buyers that have limited outside market options at the time that the exchanges occur, the prices at which these trades occur may be determined by bargaining and novel impacts of trade and domestic policies on international prices can then arise. And as a result, even when they are not yet constrained by a trade agreement, all policies, both trade *and* domestic, may be set inefficiently. When this is the case, the foundation for the GATT/WTO shallow approach to integration that I described above no longer holds, and a deeper approach to integration may be needed to address the policy inefficiencies of the global economy.

It is therefore possible that the rise of offshoring has changed the nature of international policy externalities, and in doing so has made the shallow-integration approach of the GATT/WTO no longer well-designed to solve the fundamental trade agreement problem. If this is so, then deeper forms of integration will be required to achieve internationally efficient policies, and a stark trade-off between sovereignty and globalization may now be unavoidable (and as I will discuss, something similar may be behind the recent push toward regulatory harmonization as an end in itself). But it is also possible that the rise of offshoring has *not* fundamentally changed the nature of international policy externalities, or has changed the nature of the policy externalities only temporarily, as offshoring itself

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may be a transitory phenomenon. Either way, it is difficult to see how "Repeal and Replace" could be the right strategy for arriving at an effective world trading system for the twenty-first century, as that strategy risks throwing the baby out with the bath water and, by undercutting the WTO, undermining the best hope for a balance between globalization and national sovereignty. Instead, building on the GATT/WTO foundation to address these twenty-first century problems where they exist seems like a sensible approach, even if the world trading system of the twentieth century is in need of a fundamental overhaul.

The stakes of getting it right   There would also be other implications of the demise of the WTO that are more difficult to assess but could be important. These would include the loss of an international institution that has built-in procedures for rethinking levels of market access commitments in an orderly, rules-based fashion: through its reciprocity principle, GATT/WTO market access commitments are structured as "liability rules" that permit legal buy outs of previously agreed market access commitments whenever a country believes that its previous commitments to levels of market access are no longer serving its interests. And they would include the loss of an international institution that places multilateral restraints on the structure and negotiation of PTAs: one need look no further than Trump Trade Tweets to imagine what it would be like to renegotiate the terms of NAFTA with the US if the US did not feel constrained by its WTO commitments:

More broadly, there would be collateral damage from the demise of the WTO, such as the loss of the possibility of linkage between the WTO and international environmental agreements at a time when the world is facing the increasingly urgent need to address climate change.

In short, it appears that the world trading system of the twentieth century can be adapted to address the challenges of the twenty-first century, and that rather

than adopting an approach to the creation of an effective world trading system for the twenty-first century that follows that mantra "Move fast and break things," it may be possible to simply Keep Calm and Carry On.

In the next five chapters I provide a foundation for this position. I begin in chapter 2 with an overview of the GATT/WTO, and I introduce the basic features of a modeling framework that has been used to interpret its design. In chapters 3 and 4 I discuss research that evaluates GATT's design as the constitution of the world trading system for the twentieth century. I focus here on tariff bargaining, the foundational activity of the GATT/WTO, and I refer the interested reader to Staiger (2021) where a more complete evaluation of GATT's design features may be found. I then turn to the set of twenty-first century challenges faced by the WTO, and I ask whether the current design features of the GATT/WTO are up to the task of meeting these challenges. In Staiger (2021) I argue that these design features are appropriate for meeting many, though not all, of these challenges. Here I focus on just two of those challenges: a set of interrelated challenges for the WTO associated with the rise of the large emerging economies, including China; and the challenges faced by the WTO in accommodating efforts to address global climate change and the positive role that the WTO might play in addressing this issue. I again refer the interested reader to Staiger (2021) where a treatment of the larger set of twenty-first century challenges surveyed in this introductory chapter may be found.

2. The GATT/WTO

In this chapter I provide a broad overview of the GATT as well as its successor the WTO, and of the basic modeling framework that will provide my foundation for an economic interpretation of GATT's design features, its successes, and ultimately its shortcomings. I begin by describing GATT's design and a brief history of how it came to be, and I then present the modeling framework that will guide the investigation to follow.

2.1. The design of the GATT/WTO[4]

Origins The direct historical antecedents of what would eventually serve as the de facto constitution of the world trading system of the twentieth century arose at

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[4]The material in this section builds from chapter 3 of Bagwell and Staiger (2002) and section 4 of Bagwell and Staiger (2010a).

a time of crisis. Trade barriers had become increasingly restrictive in the decade following World War I, and reached a climax when the United States enacted the Smoot-Hawley Tariff Act of 1930, increasing average U.S. tariffs from 38 to 52%. U.S. trading partners were quick to respond, and soon tariff rates among all the major powers were generally on the order of 50%. As Hudec (1990, p. 5) explains, "the postwar design for international trade policy was animated by a single-minded concern to avoid repeating the disastrous errors of the 1920's and 1930's."

In 1934, the U.S. Congress passed the Reciprocal Trade Agreements Act (RTAA). Under the RTAA, the United States for the first time engaged in bilateral reciprocal tariff bargaining with a sequence of trading partners, and it combined this bilateral bargaining approach with unconditional MFN, according to which exports from each country with whom the United States had an agreement under the RTAA would automatically receive the lowest ("most favored nation") tariff rate that the United States offered to any exporting country. It is widely acknowledged that much of the GATT architecture was inspired by prior U.S. experience with the RTAA.

What is less-well appreciated is the way in which the RTAA was itself influenced by the successes and failures of the many international attempts that came before it to address the problem of high and rising trade barriers. During the decade following World War I, the United States took part in a number of multilateral bargaining efforts to address this issue, each largely unsuccessful. In describing the evolution away from multilateral bargaining and toward the bilateral bargaining approach that would eventually be embodied in the RTAA, Tasca (1938, p. 7) attributes the lack of success of these earlier multilateral attempts to the complexity of multi-country bargaining:

> "The adoption of a policy of bilateral actions does not preclude the use of multilateral conventions to liquidate trade barriers. During the postwar period various attempts to proceed upon this basis have met with little success. It is the method itself which possesses weaknesses in certain respects.
>
> "The complexities involved in such a program of concerted action arise in part out of the fundamental variations in national tariff systems. This means that practically only horizontal reductions in tariffs can be considered feasible. But the differences in the economies concerned and their varying positions in the world economy demand reductions in trade barriers according to the circumstances in each case. Moreover, the diffusion of

responsibility grows with the number of prospective contractants. Nations became less concerned with the failure of a projected plurilateral pact and more with the possibility of yielding more in the way of concessions than other nations."

As Tasca observes, these repeated failures of multilateral bargaining led to a conscious decision on the part of the United States to experiment with bilateral bargaining under the RTAA.

The RTAA was remarkable not only because it adopted a bilateral bargaining approach to the problem, but because it marked the first time that the United States combined bilateral tariff bargaining with unconditional MFN.[5] Yet while the approach embodied in the RTAA was novel from the U.S. perspective, from the perspective of Europeans it was not new at all. As Tasca (1938, p. 135) observes,

"It is to be noted at the outset that tariff bargaining combined with most-favored-nation treatment is by no means a novel policy. For decades it has formed the essential basis of the commercial policies of numerous European countries."

In fact, it appears that the design and implementation of the RTAA built on lessons learned from the European experience in at least two important ways.

First, the European experience with bilateral tariff bargaining established the practical necessity of combining this approach with unconditional MFN. As Wallace (1933, p. 629) writes:

"...After the World War, France experimented with the idea of abandoning the most-favored-nation clause...By 1927 France was again driven back to the granting of most-favored-nation treatment, either de jure or de facto. The reason is not far to seek. When a country, by exclusive tariff bargains, institutes discriminations against third countries, then the greater these discriminations the greater will be the pressure against that country for their removal. In each successive negotiation it finds that the firmest demand of the other country is for equality of treatment, present and future, guarded by a most-favored-nation clause or its equivalent."

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[5]The United States had, since 1922, adopted an unconditional MFN approach, but it maintained an "autonomous" (i.e., unilateral) tariff up until the RTAA (see Tasca, 1938, pp. 116-121).

In effect, the European experience with bilateral tariff bargaining taught the important lesson that a country's current bargaining partners would require assurance that any future bilateral deals that it struck with other countries would not substantially erode the value of the concessions being granted, and that the most practical way to provide assurance against such "concession erosion" was with a promise of unconditional MFN. The promise of unconditional MFN was included in the RTAA in part to address the concession erosion issue.[6]

Second, the European experience provided an object lesson in the power of the perverse incentive to raise tariffs – and thereby adopt so-called "bargaining tariffs" – to better position oneself for future negotiations. According to Wallace (1938, p. 630),

> "...[t]his padding of tariff rates in anticipation of negotiations is a chief reason why half a century of bargaining has meant on the whole higher and higher tariff rates in Europe instead of lower and lower rates."

This experience also informed the design of the RTAA. As Tasca (1938, p. 179, note 34) observes,

> "The United States Tariff Commission in submitting recommendations on tariff bargaining declared, 'The Congress should formulate restrictions designed to prevent the inclusion in reciprocity agreements of illusory concessions; that is, the removal of trade barriers or the reduction of tariff rates when such barriers and rates had been raised in anticipation of tariff bargaining, the amount of the concessions being smaller than or not greater than the previous increases in barriers and rates. Specifically, it is suggested that the Congress prescribe that all concessions included in the reciprocity agreements, on both sides, be made from the rates and relating to the barriers in effect at a date which shall be fixed by the Congress'..."

The lessons learned from the European experience with bilateral tariff bargaining may therefore have contributed to the success of bilateral tariff bargaining under the RTAA by helping the United States avoid the twin problems associated with concession erosion and bargaining tariffs that plagued the European efforts before it. But as it happened, the adoption of unconditional MFN would itself

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[6]Other arguments articulated at the time for adopting a policy of unconditional MFN included the perceived "multilateralization" benefits that this inclusion was expected to engender, and a reduction in the risk of war (see, for example, Culbert, 1987 and Rhodes, 1993).

introduce a different potential issue for the RTAA, one that was related to the earlier problem of bargaining tariffs that the Europeans had experienced but took a slightly different form: while in the European experience this issue had taken the form of the unilateral positioning of pre-negotiation tariffs, under the RTAA the analogous issue became how to design bilateral agreements with early negotiating partners to best preserve bargaining power for later agreements with other negotiating partners.[7] This task was made difficult by the unconditional MFN requirement, which automatically granted "for free" to other potential bargaining partners any tariff concessions granted to early negotiating partners.

The preservation of bargaining power for later negotiations became a major preoccupation of the United States under the RTAA. Summarizing his discussion of the tactics used by the United States under the RTAA in this regard, Tasca (1938, pp. 146-147) concludes:

> "There are, then, five methods being utilized by the United States to assure the compatibility of the unconditional most-favored-nation clause with a conventional tariff bargaining program. By far the most basic is the chief supplier formula. This is reenforced by the reclassification of commodities in the tariff schedules of the Act of 1930. The use of partial reductions in successive agreements, the simultaneous negotiations with groups of countries and the withdrawal clause are subsidiary to the first two. They play the part of supporting beams in those instances in which the chief supplier is not entirely applicable to existing conditions."

In effect, by granting tariff concessions to a negotiating partner only on those products for which the partner was the principal ("chief") supplier, possibly combined with product reclassification for tariff purposes to heighten the dominance of the partner in these products, it was thought that much of the free-rider potential created by unconditional MFN could be eliminated. And where free-riding remained a substantial possibility, three additional tactics were available: splitting the concession into a sequence of partial tariff reductions negotiated with different countries in successive agreements; attempting to engage groups of countries in simultaneous negotiations; and threatening to withdraw or modify the earlier agreement if free-riding continued.

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[7]Evidently, the issue of unilaterally selected bargaining tariffs experienced by the Europeans was so destructive to meaningful agreements that it prevented the sorts of related issues confronted by the United States under the RTAA from even arising.

Beckett (1941) reviews the U.S. experience under the RTAA, and emphasizes the difficulties involved in preserving bargaining power in the presence of unconditional MFN, even when the chief supplier rule is applied. As she describes, split concessions often became the preferred method to prevent undue loss of bargaining power in an early negotiation:

> "It is important to notice that the use of the chief supplier rule involves certain special difficulties. A problem arises, for instance, when, during the process of negotiation with small countries, it is impossible to isolate any commodities in which the other country is our chief supplier...A further difficulty appears when two or more countries supply almost exactly the same quantity of a given commodity or when two countries are the chief suppliers of the commodity in alternative years. If a substantial reduction in duty is granted in the trade agreement with one country, bargaining power with the other country is lost. To avoid such embarrassment, simultaneous negotiations of two agreements can be attempted. More often a split concession is granted: that is, a small reduction in duty is made in the agreement with the first country and an additional reduction in the agreement with the second country. By this procedure bargaining power with the second country is preserved..." (Beckett, 1941, p. 23).

Tasca (1938, p. 146) also emphasizes the importance in this regard of the various withdrawal clauses that were included in the RTAA:

> "If the major benefits of a duty concession fall to a third country and 'in consequence thereof an unduly large increase in importation' takes place, the contractants may withdraw the concession or impose a quantitative restriction upon imports of that item. Concessions are granted by the United States only after careful study in order to gauge the effects upon the whole economy; if these calculations should fail, then there exists a remedy in resort to this clause. But what is more significant, this withdrawal clause forestalls any third country from reaping any considerable benefit from a concession which might in any manner lessen its incentive to promulgate a pact with the United States..."

The practice of granting split concessions became the most frequently observed manifestation of bargaining tariffs under the RTAA, while the threat to withdraw or modify a concession was typically kept in the background but seen as providing an important means of maintaining bargaining leverage for later negotiations.

In short, tariff bargaining under the RTAA exhibited a number of central features. The approach was decidedly bilateral, chosen only after the United States had considered, attempted, and ultimately rejected multilateral tariff bargaining. Prior European experience with concession erosion and bargaining tariffs influenced the design and implementation of the RTAA along important dimensions. And unconditional MFN, the chief supplier rule, split concessions and withdrawal/modification clauses were understood to be central to the operation of reciprocal tariff bargaining under the RTAA.

Between 1934 and 1947, the United States successfully concluded separate bilateral agreements with 29 countries. Encouraged by its success in the bilateral arena with the RTAA, the United States sought to build upon the key components and establish a multilateral institution. In 1946, negotiations began for the creation of an International Trade Organization (ITO). As with the RTAA, under the ITO it was expected that negotiations between governments would result in reciprocal and mutually advantageous reductions in tariffs, and the principle of non-discrimination would then ensure that the reduced tariffs would be extended to all member countries. In 1947, GATT was negotiated and was intended to serve as an interim agreement, but the ITO was never ratified by the U.S. Congress.

Stated Purpose   What is the stated purpose of GATT? According to its Preamble, the objectives of the contracting parties include

> "raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, developing the full use of the resources of the world and expanding the production and exchange of goods."

As for the means to achieve this purpose, the Preamble of GATT states the contracting parties' belief that

> "reciprocal and mutually advantageous arrangements directed to the substantial reduction in tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce"

would contribute toward these goals. The objectives stated in the Preamble to the WTO are broadened to include the exchange of not only goods but also of services, and to acknowledge the additional objectives of sustainable development, the protection and preservation of the environment, and the greater inclusion of

developing countries to share in the gains from the growth of trade. But the means to achieve this purpose as stated in the WTO Preamble are identical to those stated in the GATT Preamble (with the phrase "international trade relations" in the WTO Preamble replacing the phrase "international commerce" from the GATT Preamble).

Perhaps surprisingly to economists, free trade is not a stated objective of GATT or of the WTO. This reflects the fact that, as a "member-driven" organization that serves as a trade policy negotiating forum for member governments with diverse interests, priorities and needs, the GATT/WTO is designed with the aim of securing mutually beneficial agreements among these governments, and free trade is not necessarily something to which all member governments will aspire.

In total, there were eight rounds of GATT negotiations that together spanned almost 50 years. The primary focus of the earlier rounds was the reduction of import tariffs on goods. In the final GATT round, known as the Uruguay Round, governments ventured into a number of new issue areas (e.g., investment, services and intellectual property) and formed the WTO. The WTO has sponsored a ninth round, the Doha Round, launched in 2001 and as yet uncompleted. The WTO embraces the rules and agreements made in GATT negotiations, but it is also a full-fledged international organization, with an explicit organizational charter and a unified dispute-settlement system. In effect, with the creation of the WTO, participating governments fulfilled their original quest with the ITO for an official international organization that would set and administer the rules of the world trading system.

Architecture   GATT/WTO member governments are obliged to abide by a set of rules. In GATT, these rules were laid out in a series of 39 articles. The WTO has incorporated these GATT articles and extended the principles embodied in them to a number of new issue areas. Below I provide a brief overview of the GATT/WTO legal structure by focussing on the principles embodied in these articles.

To organize the discussion, it helps to distinguish between three broad elements: substantive obligations, exceptions to those obligations, and dispute settlement procedures. The substantive obligations of a GATT/WTO member relate to tariff commitments, MFN treatment and a general "code of conduct" in the international-trade arena. Broadly speaking, these provisions oblige the member-governments to concentrate national protective measures into the form of tariffs, to apply them on a non-discriminatory basis to other members, and to honor any

tariff "bindings" made in a GATT/WTO negotiation, where the tariff binding refers to a legal maximum level above which a country agrees not to raise its tariff.

As mentioned, the GATT/WTO also provides for certain exceptions to these obligations. One class of exceptions is for "original" actions, such as when a member seeks to suspend an obligation temporarily, or to permanently withdraw a previous concession through renegotiation. The rationale for including exceptions of this nature is that a government is more likely to make a substantial tariff commitment if it knows that the legal system has "safeguards" allowing its concessions to be modified or withdrawn under appropriate conditions. Of course, a tariff commitment would lose its meaning if exceptions for original actions were not subject to some disciplining structure. In part for this reason, and in part to maintain a balance between the rights and obligations of the members, GATT/WTO rules permit as well a second class of exceptions for "retaliatory" actions. Specifically, if a government modifies or withdraws a previous concession, then GATT/WTO rules recognize that a cost may be borne by a trading partner. This partner may then seek "compensation" from the government for the harm done (e.g., a tariff reduction from the government on some other good), and if this fails the partner is allowed to achieve "self-help" compensation through retaliation. The meaning of retaliation is that the trading partner can reciprocate by withdrawing a concession of a "substantially equivalent" nature.

The third element mentioned above is the GATT/WTO dispute settlement procedures. Here a central issue is the determination whether the actions by one country serve to "nullify or impair" the benefits expected under the agreement by another country. Nullification or impairment includes actions taken by one country "which harmed the trade of another, and which 'could not reasonably have been anticipated' by the other at the time it negotiated for a concession" (Jackson, 1997, p. 115). In the typical "violation complaint," a country is alleged to have failed to comply with one or more of its GATT/WTO obligations, leading to a prima facie case of nullification or impairment.

An important distinction arises between the procedures associated with safeguard exceptions and those that are associated with nullification or impairment. The safeguard procedures provide explicitly for the *lawful* suspension of obligations or withdrawal of negotiated concessions, and these procedures specify as well the permissible retaliatory responses of trading partners. By contrast, the dispute settlement procedures govern retaliation against a country that takes a harmful action which its trading partners could not have anticipated under GATT/WTO

rules. In the typical complaint, at issue is whether the offending country has violated GATT/WTO rules, and retaliation here may then be more directly concerned with the enforcement of rules.

The procedure for settling disputes progresses through three stages: first, there is a consultation phase among the involved parties; second, a GATT/WTO panel (and, after appeal, the Appellate Body) conducts an investigation and issues a ruling and recommendation; and as a last resort, authorization of retaliation occurs. Resolution may be (and often is) achieved in the first stage, or it may follow the panel ruling. If the panel finds that nullification or impairment has occurred, then it recommends that the offending country correct any illegal measures. The offending country may be unwilling to do so, however. In this case, it may seek a negotiated resolution by offering the harmed country compensation via MFN tariff reductions on some other goods. If compensation is not offered, or if it is offered but rejected, then the harmed country may follow through with the last-resort response: an authorized and discriminatory suspension of tariff concessions. In practice, the number of authorized retaliations has been small, though this number has grown in the WTO era. As Rhodes (1993, p. 109) observes, however, the threat of authorized retaliation is often the catalyst for a resolution of the dispute in the earlier stages.

It is notable that, while authorized retaliation in the context of dispute resolution is allowed to be discriminatory, with some possible exceptions that I describe in Staiger (2021) it is nevertheless limited to the suspension or withdrawal of concessions of a substantially equivalent nature. One might have thought that in the context of an erupting trade war the GATT/WTO would authorize and coordinate maximal retaliation against a member government found to be in violation of the rules by the GATT/WTO's own dispute settlement body. But in fact, as the early report of the United States International Chamber of Commerce from which I quoted in chapter 1 observed, the GATT dispute settlement procedures keep a *lid* on permissible retaliation levels, and this is how the GATT/WTO dispute settlement system works to avoid a trade war. This point was reflected in a statement made by one of the drafters of the original GATT Articles governing retaliation in the context of dispute settlement, as found in Petersmann (1997, pp. 82-83):

> "The drafting history of Article XXIII:2 confirms that it was designed to limit the customary law right of unilateral reprisals, whose exercise had contributed so much to the 'law of the jungle' in international economic affairs during the 1930's, and to introduce, as stated by one of the drafters,

'a new principle in international economic relations. We have asked the nations of the world to confer upon an international organization the right to limit their power to retaliate. We have sought to tame retaliation, to discipline it, to keep it within bounds. By subjecting it to the restraints of international control, we have endeavored to check its spread and growth, to convert it from a weapon of economic warfare to an instrument of international order.' "

Indeed, Schwartz and Sykes (2002) argue that the major innovation in the dispute settlement procedures of the WTO relative to GATT was the addition of a mechanism for arbitrating the magnitude of authorized retaliation so that an effective lid on retaliation could be maintained.

Finally, it is often observed that, along with MFN, reciprocity is a pillar of the GATT/WTO architecture. In the GATT/WTO, the principle of reciprocity refers to the ideal of mutual changes in trade policy which bring about changes in the volume of each country's imports that are of equal value to changes in the volume of its exports. The preceding discussion contains two instances in which the notion of reciprocity arises. First, as I have observed, when governments negotiate in GATT/WTO rounds, they do so with the stated goal of obtaining mutually advantageous arrangements through reciprocal reductions in tariff bindings: in this context, it is often observed that governments approach negotiations seeking a "balance of concessions," whereby the market access value of the tariff cut offered by one government is balanced against an "equivalent" concession from its trading partner. This first instance of reciprocity therefore refers to changes in tariffs in a liberalizing direction. Second, when a government seeks to renegotiate its tariff commitments and modifies or withdraws a previous concession as an original action, and more generally whenever a government takes an action which nullifies or impairs the benefits expected under the agreement by another government, GATT/WTO rules permit substantially affected trading partners to retaliate in a reciprocal manner, by withdrawing "substantially equivalent concessions." This second instance of reciprocity refers to changes in tariffs in an upward direction.

The balance achieved through reciprocity in tariff negotiations and the role of retaliation in preserving this balance is nicely summarized in a remark by a second drafter of the GATT Articles governing retaliation as quoted in Jackson (1969, pp. 170-71):

"What we have really provided, in the last analysis, is not that retaliation shall be invited or sanctions invoked, but that a balance of interests once

established, shall be maintained."

And the unique role of retaliation in the GATT legal system as a means of preserving reciprocity is pointed out by Dam (1970, pp. 80-81):

> "The best guarantee that a commitment of any kind will be kept (particularly in an international setting where courts are of limited importance and, even more important, marshals and jails are nonexistent) is that the parties continue to view adherence to their agreement as in their mutual interest...
>
> "Thus, the GATT system, unlike most legal systems,..., is not designed to exclude self-help in the form of retaliation. Rather, retaliation, subjected to established procedures and kept within prescribed bounds, is made the heart of the GATT system."

2.2. The purpose of trade agreements[8]

I now present the outlines of a basic modeling framework that will provide my foundation for an economic interpretation of GATT's design features, its successes, and ultimately its shortcomings. In this section I develop the model to answer one simple but fundamental question: What problems would governments want a trade agreement to help them solve? The answer to this question clarifies the purpose of a trade agreement, and can help guide its design to serve that purpose.

To provide an answer, I will abstract from possible domestic commitment problems that a government might face and which could lead to *domestic* inefficiencies in its unilaterally chosen policies, and which it might seek to solve with help from a trade agreement as an external commitment device.[9] I will focus instead on characterizing the possible *international* inefficiencies that might arise under unilaterally chosen policies and that a trade agreement could address. A useful starting point for this purpose is the standard 2-country 2-good general equilibrium model of trade familiar from any undergraduate international trade course.

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[8]The material in this section builds from Chapter 2 of Bagwell and Staiger (2002).

[9]On the possibility that trade agreements might help solve the domestic commitment problems of its member governments, see the literature reviewed in Bagwell and Staiger (2002, pp 32-34).

The general equilibrium trade model The standard general equilibrium model of trade has two countries, home (no *) and foreign (*), who trade two goods which are normal goods in consumption and produced in perfectly competitive markets under conditions of increasing opportunity costs. I denote by x the natural import good of the home country, and by y the natural import good of the foreign country, and define $p \equiv p_x/p_y$ and $p^* \equiv p_x^*/p_y^*$ to be respectively the local relative price in the home and foreign market. With τ the home-country import tariff and τ^* the foreign-country import tariff each expressed in ad valorem terms and assumed to be set at non-prohibitive levels, it then follows that $p = (1+\tau)p^w \equiv p(\tau, p^w)$ and $p^* = p^w/(1+\tau^*) \equiv p^*(\tau^*, p^w)$, where $p^w \equiv p_x^*/p_y$ is the "world" (i.e., untaxed) relative price. The foreign terms of trade is then given by p^w while the home terms of trade is given by $(1/p^w)$. I am assuming for now that governments possess tariffs as their only tax/subsidy instrument. This ensures that both producers and consumers face the same local relative price in the market within which they reside. In later chapters I will introduce into the model a richer array of government policies which include the possibility of regulatory standards as well as production and/or consumption taxes/subsidies, and in the presence of the additional tax/subsidy policies consumers and producers residing in the same market may face different local prices.

Production possibilities in each country are defined by a production possibilities frontier, which with Q denoting production I represent by the decreasing and concave function $Q_y(Q_x)$ in the home country and $Q_y^*(Q_x^*)$ in the foreign country defined over the feasible values of production of x in each country. Production in a country occurs at the point on the production possibilities frontier where the marginal rate of transformation between x and y is equal to the local relative price, allowing home and foreign production functions to be represented as $Q_i = Q_i(p)$ and $Q_i^* = Q_i^*(p^*)$ for $i = \{x, y\}$. Consumption depends on both the local relative price – which defines the trade-off faced by consumers and, in determining the point on the production possibilities frontier at which the economy operates, also implies the level and distribution of factor income in the economy measured at local prices – and on tariff revenue, which is distributed lump-sum back to consumers in the country where it is collected. I denote by R the tariff revenue collected in the home country, and by R^* the tariff revenue collected in the foreign country, each measured in units of the country's export good at local prices. National consumption in the home and foreign country can then be written as $D_i = D_i(p, R)$ and $D_i^* = D_i^*(p^*, R^*)$ for $i = \{x, y\}$, where tariff revenue is defined implicitly by $R = [D_x(p, R) - Q_x(p)][p - p^w]$ or $R = R(p, p^w)$ for the

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home country and by $R^* = [D_y^*(p^*, R^*) - Q_y^*(p^*)][1/p^* - 1/p^w]$ or $R^* = R^*(p^*, p^w)$ for the foreign country, and where each country's tariff revenue is an increasing function of its terms of trade under the normal-goods assumption. This allows national consumption in each country to be written as $C_i(p, p^w) \equiv D_i(p, R(p, p^w))$ and $C_i^*(p^*, p^w) \equiv D_i^*(p^*, R^*(p^*, p^w))$ for $i = \{x, y\}$, with C_i decreasing in p^w and C_i^* increasing in p^w.

To express the trade balance and equilibrium conditions of the model, I define home-country imports of x and exports of y by $M_x(p, p^w) \equiv C_x(p, p^w) - Q_x(p)$ and $E_y(p, p^w) \equiv Q_y(p) - C_y(p, p^w)$, respectively. Similarly, foreign-country imports of y and exports of x are defined by $M_y^*(p^*, p^w) \equiv C_y^*(p^*, p^w) - Q_y^*(p^*)$ and $E_x^*(p^*, p^w) \equiv Q_x^*(p^*) - C_x^*(p^*, p^w)$, respectively. For any world price, home and foreign national budget constraints imply the balanced trade conditions

$$p^w M_x(p(\tau, p^w), p^w) = E_y(p(\tau, p^w), p^w), \text{ and} \tag{2.1}$$

$$M_y^*(p^*(\tau^*, p^w), p^w) = p^w E_x^*(p^*(\tau^*, p^w), p^w), \tag{2.2}$$

where I now make explicit the dependence of the local price on the tariff and the world price. The equilibrium world price, $\widetilde{p}^w(\tau, \tau^*)$, is then determined by the requirement of market-clearing for good y:

$$E_y(p(\tau, \widetilde{p}^w), \widetilde{p}^w) = M_y^*(p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w), \tag{2.3}$$

with market clearing for good x implied by (2.1), (2.2) and (2.3).

Thus, given any pair of tariffs, the equilibrium world price is determined by (2.3), and the equilibrium world price and the given tariffs then determine in turn the local prices and thereby the production, consumption, import, export and tariff revenue levels. I focus on the standard case and therefore assume that the Lerner and Metzler paradoxes are ruled out, so that[10]

$$\frac{\partial \widetilde{p}^w(\tau, \tau^*)}{\partial \tau} < 0 < \frac{\partial \widetilde{p}^w(\tau, \tau^*)}{\partial \tau^*} \text{ and } \frac{dp(\tau, \widetilde{p}^w(\tau, \tau^*))}{d\tau} > 0 > \frac{dp^*(\tau^*, \widetilde{p}^w(\tau, \tau^*))}{d\tau^*}. \tag{2.4}$$

For future reference, I note that the first set of inequalities in (2.4) implies that, if the home tariff τ were reduced by a small amount, there exists a small reduction in the foreign tariff τ^* that would hold the equilibrium world price $\widetilde{p}^w$ constant.

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[10] Bagwell and Staiger (2016, pp 499-501) consider the implications for the purpose of trade agreements when the Metzler and/or Lerner paradoxical cases arise.

Government objectives I now turn to the specification of government objectives. The trade policy objectives of real-world governments are diverse, and it is important to allow for this diversity when considering the purpose of a trade agreement, lest the purpose ascribed to the agreement is unduly limited by the trade policy objectives ascribed to governments. Even in the simple model of a world economy presented here, there are many possible motives for government trade policy intervention that could be entertained.

For example, a government might care only about the level of national consumption and hence the level of real national income when choosing its tariffs, either because it is unconcerned about the distribution of income and consumption among its citizens, or because it has lump-sum redistributive instruments to handle these concerns. The preferences of such a government in the home country could be represented in the model with the objective function $G(C_x, C_y)$, with G increasing in both arguments. Notice that, as $C_i(p, p^w)$ is decreasing in p^w for $i \in \{x, y\}$ as indicated above, I can also write this objective function as

$$G(C_x(p, p^w), C_y(p, p^w)) \equiv W(p, p^w) \qquad (2.5)$$

where W is decreasing in p^w; and similarly for the foreign government I can write

$$G^*(C_x^*(p^*, p^w), C_y^*(p^*, p^w)) \equiv W^*(p^*, p^w) \qquad (2.6)$$

where W^* is increasing in p^w given that $C_i^*(p^*, p^w)$ is increasing in p^w.

But real-world governments often view tariffs as a tool to address distributional concerns.[11] Why would these governments use tariffs for this purpose, when it is well-known that there are other policy interventions that are in principle better suited for this task? One reason could be that in practice these governments lack not only the policy ideal of lump-sum taxes, but also any of the other policy instruments that, if available, would typically dominate tariffs as tools for influencing the distribution of income and preserve the economist's case for free trade; and in the context of this limited set of policy options, tariffs might then be the best available policy response to address these concerns.[12] Or it could be that, even though some of these policy instruments are technically available to

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[11] These concerns likely reflect a combination of a desire of governments to serve some notion of social welfare, as in Corden's (1974) "Conservative Social Welfare Function," and political economy motives to redistribute to politically favored groups (as in for example Grossman and Helpman, 1994).

[12] There are a variety of reasons why as a practical matter such non-tariff instruments may not be available to governments, including administrative costs and funding requirements that

governments, the welfare of their citizens is determined by more than simply the material standard of living that can be attained with a given level of consumption, and depends as well on the *manner* in which the income to support this level of consumption is attained, with the receipt of lump-sum transfers or direct subsidy payments diminishing personal dignity in a way that earning income at market prices – even if not the prices that would prevail under free trade – would not.

In any event, the fact is that many governments use tariffs to address distributional concerns and more broadly as tools of industrial policy, and therefore choose tariffs to impact the sectoral pattern of production in their economies for reasons that go beyond how that production translates into real national income and thereby national consumption levels. In terms of the model, these governments would appear to have preferences over where on the production possibilities frontier their economy operates, independently of the national consumption levels that are attained. Such government preferences for the home country could be represented in the model by the objective function $G(C_x, C_y, Q_x, Q_y(Q_x))$. The distribution and level of factor income measured in local prices would be pinned down for a given choice of Q_x and therefore $Q_y(Q_x)$ on the production possibilities frontier, and conditional on the aggregate level of national consumption C_x and C_y the home government would then have its own preference ranking over the choice of Q_x and $Q_y(Q_x)$ as reflected in the function G; and for given Q_x and $Q_y(Q_x)$ and the factor incomes that are implied, it is again natural that G is increasing in C_x and C_y, because when factor incomes are fixed, increasing C_x and C_y amounts to increases in tariff revenue according to the national budget constraint. Notice again that I can write this objective function as

$$G(C_x(p, p^w), C_y(p, p^w), Q_x(p), Q_y(Q_x(p))) \equiv W(p, p^w) \qquad (2.7)$$

where W is decreasing in p^w. And similarly for the foreign government I can write

$$G^*(C_x^*(p^*, p^w), C_y^*(p^*, p^w), Q_x^*(p^*), Q_y^*(Q_x^*(p^*))) \equiv W^*(p^*, p^w) \qquad (2.8)$$

where W^* is increasing in p^w.

More generally, a government's preferences over the sectoral pattern of production in its economy could arise for reasons of national security, or from the

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when taken into account could make these instruments impractical or at least less attractive than tariffs. See also Rodrik (1987), Drazen and Limao (2008) and Limao and Tovar (2011) on additional reasons why governments may choose to use tariffs for purposes of redistribution. I discuss the possible role of tariffs as a tool of industrial policy more generally in chapter 5.

societal benefits of maintaining a robust middle class with access to stable good-paying jobs that are more prevalent in one sector than they are in another, or from the desire to preserve employment in a region that is dependent on a particular sector, or from the avoidance of sector-specific negative externalities of an "eyesore" variety. Any of these non-pecuniary features could be embedded in the model without changing the formal structure I have outlined above, as long as they do not invalidate the competitive equilibrium conditions that the model assumes or lead to transborder non-pecuniary externalities. And for each of these cases I can once again write the associated home-government objective function as in (2.7) with W decreasing in p^w, and similarly I can again write the associated foreign-government objective function as in (2.8) with W^* increasing in p^w.

Evidently, in all of the cases I have described, government preferences can be represented in the model with the home-country and foreign-country objective functions expressed in the form $W(p, p^w)$ and $W^*(p^*, p^w)$ respectively, where W is decreasing in p^w and W^* is increasing in p^w, and where the difference across these various government objectives translates into differences in how W varies with p and how W^* varies with p^*.[13] To capture all of these possibilities in a unified framework, I will therefore follow Bagwell and Staiger (1999, 2002) and represent the trade policy objectives of the home and foreign government with the general functions $W(p, p^w)$ and $W^*(p^*, p^w)$, with the only structure placed on W and W^* that, holding its local price fixed, each government is assumed to achieve higher welfare when its terms of trade improve:[14]

$$\frac{\partial W(p, \widetilde{p}^w)}{\partial \widetilde{p}^w} < 0 \text{ and } \frac{\partial W^*(p^*, \widetilde{p}^w)}{\partial \widetilde{p}^w} > 0. \tag{2.9}$$

The purpose of a trade agreement   I now turn to the central question of this chapter: What problems would governments want a trade agreement to help them solve? In the absence of a trade agreement, I assume that each government would set its trade policy to maximize its objective function taking as given the tariff choice of its trading partner, yielding the home and foreign reaction functions

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[13]See also Bagwell and Staiger (1999, 2002 pp. 18-21) for an inventory of the formal approaches to modeling trade policy determination in the economics literature that are captured by this structure.

[14]See Bagwell and Staiger (2002, pp 19-20) for a description of the change in the home and foreign tariff that would increase $\widetilde{p}^w$ while maintaining fixed an economy's local price. Throughout, I also impose standard regularity conditions, so that all second-order conditions are globally satisfied and all partial derivatives of W and W^* are finite.

defined implicitly by the respective first-order conditions

$$Home\ Reaction\ Funcion: W_p \frac{dp}{d\tau} + W_{p^w} \frac{\partial \widetilde{p}^w}{\partial \tau} = 0 \tag{2.10}$$

$$Foreign\ Reaction\ Funcion: W_{p^*}^* \frac{dp^*}{d\tau^*} + W_{p^w}^* \frac{\partial \widetilde{p}^w}{\partial \tau^*} = 0, \tag{2.11}$$

where subscripts denote partial derivatives. The joint solution to (2.10) and (2.11) defines the noncooperative (Nash) tariff pair (τ^N, τ^{*N}). Notice that under (2.4) and (2.9), the home-country reaction function (2.10) implies $W_p < 0$ while the foreign-country reaction function (2.11) implies $W_{p^*}^* > 0$. I will return to this feature of noncooperative tariffs below.

Under a trade agreement, by contrast, I assume that the two governments negotiate to a position on the efficiency frontier, where the efficiency frontier is defined by

$$\max_{\tau, \tau^*} W(p(\tau, \widetilde{p}^w), \widetilde{p}^w) \tag{2.12}$$

$$s.t.\ W^*(p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w) \geq \bar{W}^*,$$

with $\bar{W}^*$ denoting any feasible level of foreign welfare. The efficiency frontier is characterized by solving (2.12) for each value of $\bar{W}^*$, and it traces out the locus of Pareto efficient tariff pairs (τ^E, τ^{*E}). The associated first-order conditions are given by

$$W_p \frac{dp}{d\tau} + W_{p^w} \frac{\partial \widetilde{p}^w}{\partial \tau} + \lambda \left[\left(W_{p^*}^* \frac{\partial p^*}{\partial p^w} + W_{p^w}^* \right) \frac{\partial \widetilde{p}^w}{\partial \tau} \right] = 0 \tag{2.13}$$

$$\left[W_p \frac{\partial p}{\partial p^w} + W_{p^w} \right] \frac{\partial \widetilde{p}^w}{\partial \tau^*} + \lambda \left[W_{p^*}^* \frac{dp^*}{d\tau^*} + W_{p^w}^* \frac{\partial \widetilde{p}^w}{\partial \tau^*} \right] = 0, \tag{2.14}$$

where λ is the Lagrange multiplier on the constraint in (2.12). Solving (2.13) for λ and substituting the result into (2.14), together with the price definitions, yields the condition that defines the locus of efficient tariffs:

$$[\tau W_p + W_{p^w}] \frac{\partial \widetilde{p}^w}{\partial \tau^*} - \left[\frac{\left[W_p \frac{dp}{d\tau} + W_{p^w} \frac{\partial \widetilde{p}^w}{\partial \tau} \right] \times \left[W_{p^*}^* \frac{dp^*}{d\tau^*} + W_{p^w}^* \frac{\partial \widetilde{p}^w}{\partial \tau^*} \right]}{\left[\frac{1}{\tau^*} W_{p^*}^* + W_{p^w}^* \right] \frac{\partial \widetilde{p}^w}{\partial \tau}} \right] = 0. \tag{2.15}$$

A familiar special case of the efficiency locus defined by (2.15) arises when governments care only about the level of national consumption and hence the

level of real national income when choosing their tariffs. In this case, as I have noted above, we then have that the home and foreign welfare functions $W(p, p^w)$ and $W^*(p^*, p^w)$ can be written in the particular form given in (2.5) and (2.6), respectively, and it is direct to show that (2.15) then simplifies to the Mayer (1981) locus of efficient tariffs defined by $(1 + \tau) = 1/(1 + \tau^*)$. The Mayer locus includes the point of reciprocal free trade $\tau = 0 = \tau^*$, but it also includes a locus of other efficient pairs of tariffs in which an import tariff in one country is exactly offset by an import subsidy of the same magnitude in the other country. To understand the conditions for efficiency along the Mayer locus, notice that at any point on the locus we have

$$p = (1 + \tau)\widetilde{p}^w(\tau, \tau^*) = \frac{1}{(1 + \tau^*)}\widetilde{p}^w(\tau, \tau^*) = p^*.$$

Hence, along the Mayer locus, tariffs are adjusted so as to maintain equality in relative local prices between the home and foreign countries, with different tariff pairs simply resulting in different world prices and therefore different distributions of income across the trading partners through shifts in the (positive or negative) tariff revenue collected by each country. When $W(p, p^w)$ and $W^*(p^*, p^w)$ are not assumed to conform to the particular structure in (2.5) and (2.6), (2.15) still determines the efficient relationship between home and foreign tariffs, but it need not be the case that this relationship equates relative local prices across trading partners, and it need not be the case that this relationship is satisfied by reciprocal free trade.

Continuing now with the general government preferences $W(p, p^w)$ and $W^*(p^*, p^w)$ described above, a first question is whether the noncooperative tariff choices are efficient. If they are, then assuming that the two governments have entered into negotiations voluntarily, there is nothing for a trade agreement to do since it can't offer a Pareto improvement over the noncooperative outcome. Using (2.10) and (2.11) together with (2.4) and (2.9) and the fact that the noncooperative tariffs imply $W_p < 0$ and $W^*_{p^*} > 0$, it is direct to confirm by inspection that the first-order condition for efficiency given in (2.15) is violated when evaluated at the noncooperative tariff pair (τ^N, τ^{*N}) defined by (2.10) and (2.11), and more specifically the left-hand side of (2.15) is strictly negative. This implies that, regardless of which of the underlying motives for tariff intervention included in the general government objective functions $W(p, p^w)$ and $W^*(p^*, p^w)$ is operative, noncooperative tariffs are *too high* relative to the efficiency locus, and governments can look to a

trade agreement to help them lower tariffs to efficient levels.[15] Clearly this case for tariff liberalization in a trade agreement has nothing to do with the economist's case for free trade, since it arises regardless of the underlying motives for trade protection captured in the general government objective functions $W(p, p^w)$ and $W^*(p^*, p^w)$, and as discussed above many of those motives would violate the assumptions that underlie the case for free trade as an efficient outcome.

We may now ask: Why are noncooperative tariffs inefficiently high? If we can identify the reason, then we can say that addressing this reason is the problem that governments want a trade agreement to help them solve. We can say this because by solving this problem, a trade agreement would bring countries to the efficiency frontier, and at that point there is no possibility of further Pareto gains for the governments.

To proceed formally, we need to characterize the difference between the Nash first-order conditions in (2.10) and (2.11) and the first-order conditions for efficiency given in (2.15). To aid in this characterization, it is useful to pick a specific point on the efficiency locus, and compare the conditions that define that pair of efficient tariffs to the conditions that define the pair of Nash tariffs.

A point on the efficiency locus that is particularly illuminating for this purpose is the point that Bagwell and Staiger (1999) call the "political optimum," defined as the tariff pair (τ^{PO}, τ^{*PO}) that satisfies

$$Home \ Political \ Optimum : W_p \frac{dp}{d\tau} = 0 \ \Leftrightarrow W_p = 0 \qquad (2.16)$$

$$Foreign \ Political \ Optimum : W^*_{p^*} \frac{dp^*}{d\tau^*} = 0 \ \Leftrightarrow W^*_{p^*} = 0, \qquad (2.17)$$

where the second equality in (2.16) and in (2.17) follows from the second set of inequalities in (2.4). In the special case where governments care only about the level of national consumption and hence the level of real national income when choosing their tariffs, and where the government objectives therefore take the particular form in (2.5) and (2.6), the politically optimal tariffs correspond to reciprocal free trade, a point on the Mayer locus. That politically optimal tariffs are efficient as well under the general government objective functions $W(p, p^w)$

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[15]In particular, the fact that the left-hand side of (2.15) is strictly negative when evaluated at the noncooperative tariff pair (τ^N, τ^{*N}) means that τ^{*N} is too high relative to the level of τ^* that would be efficient in combination with τ^N, and analogously τ^N is too high relative to the level of τ that would be efficient in combination with τ^{*N}. It is in this sense that noncooperative tariffs (τ^N, τ^{*N}) are too high relative to the efficiency locus.

and $W^*(p^*, p^w)$ described above can be immediately confirmed using (2.16) and (2.17) by noting that, when evaluated at the tariff pair (τ^{PO}, τ^{*PO}), the condition for efficiency (2.15) is satisfied:

$$[\tau W_p + W_{p^w}] \frac{\partial \widetilde{p}^w}{\partial \tau^*} - \left[\frac{\left[W_p \frac{dp}{d\tau} + W_{p^w} \frac{\partial \widetilde{p}^w}{\partial \tau}\right] \times \left[W_{p^*}^* \frac{dp^*}{d\tau^*} + W_{p^w}^* \frac{\partial \widetilde{p}^w}{\partial \tau^*}\right]}{\left[\frac{1}{\tau^*} W_{p^*}^* + W_{p^w}^*\right] \frac{\partial \widetilde{p}^w}{\partial \tau}} \right] = W_{p^w} \frac{\partial \widetilde{p}^w}{\partial \tau^*} - W_{p^w} \frac{\partial \widetilde{p}^w}{\partial \tau^*} = 0.$$

But comparing (2.16) and (2.17) to (2.10) and (2.11), it is now also apparent that the noncooperative tariffs fail to reach the political optimum due to the presence of a single term, $W_{p^w} \frac{\partial \widetilde{p}^w}{\partial \tau}$, in the home-country reaction curve and a single term, $W_{p^w}^* \frac{\partial \widetilde{p}^w}{\partial \tau^*}$, in the foreign country reaction curve. These terms represent the incentive each country has when choosing its tariff noncooperatively to manipulate the terms of trade in its favor, and thereby to shift a portion of the costs of its tariff intervention onto its trading partner.

For the home government, this term is the product of two negative terms: the term $\frac{\partial \widetilde{p}^w}{\partial \tau}$, which is strictly negative as long as the home country is large and therefore has market power on world markets; and the term W_{p^w}, which is also negative and reflects the negative income effect of a terms-of-trade deterioration holding local prices in the home economy fixed. And as this product is itself positive, its presence in (2.10) drives the home noncooperative tariff choice higher than the tariff that would imply $W_p = 0$, ensuring that at the noncooperative tariff we in fact have $W_p < 0$ as I have observed.

For the foreign government, this term is the product of two positive terms: the term $\frac{\partial \widetilde{p}^w}{\partial \tau^*}$, which is strictly positive as long as the foreign country is large and therefore has market power on world markets; and the term $W_{p^w}^*$, which is also positive and reflects the positive income effect of a terms-of-trade improvement holding local prices in the foreign economy fixed. And as this product is itself also positive, its presence in (2.11) drives the foreign noncooperative tariff choice higher than the tariff that would imply $W_{p^*}^* = 0$, ensuring that at the noncooperative tariff we in fact have $W_{p^*}^* > 0$ as I have observed.

The fact that these terms lead the home and foreign government to choose tariffs in the noncooperative equilibrium that imply $W_p < 0$ and $W_{p^*}^* > 0$ is also revealing. If each government were offered the opportunity to alter its tariff from the noncooperative level without impacting its terms of trade, each government would choose to *cut* its tariff from the noncooperative level, as the home tariff cut would decrease the local relative price p in the home economy according to

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the second inequality in (2.4), leading to a rise in home welfare in the amount $\Delta W = W_p[-\frac{\partial p}{\partial \tau}] > 0$; and the foreign tariff cut would increase the local relative price p^* in the foreign economy according to the second inequality in (2.4), leading to a rise in foreign welfare in the amount $\Delta W^* = W_{p^*}^*[-\frac{\partial p^*}{\partial \tau^*}] > 0$. Viewed in this light, it is then clear that it is the ability of each government to shift some of the costs of its tariff onto its trading partner through terms-of-trade movements that drives each government to choose the overly high tariffs that obtain in the noncooperative equilibrium.[16]

The upshot is that, regardless of which of the underlying motives for tariff intervention included in the general government objective functions $W(p, p^w)$ and $W^*(p^*, p^w)$ is operative, the purpose of a trade agreement is the same: to eliminate the unilateral incentive that governments have to manipulate their terms of trade, and thereby help governments escape from a terms-of-trade driven prisoner's dilemma.

Bagwell and Staiger (1999, 2002) make this same point, but from the other direction. They observe that the Nash first-order conditions (2.10) and (2.11) would be converted to the conditions (2.16) and (2.17) if the terms-of-trade manipulation terms $W_{p^w}\frac{\partial \widetilde{p}^w}{\partial \tau}$ and $W_{p^w}^*\frac{\partial \widetilde{p}^w}{\partial \tau^*}$ were dropped from (2.10) and (2.11) respectively; and they demonstrate that the conditions (2.16) and (2.17) define a point on the efficiency frontier, which they refer to as the political optimum. They then observe that the politically optimal tariffs can be interpreted as the tariffs that would arise under unilateral choices in a hypothetical world in which governments are not motivated by the terms-of-trade implications of their trade policy choices, in the sense that the home government acted as if $W_{p^w} \equiv 0$ and the foreign government acted as if $W_{p^w}^* \equiv 0$. And by showing that the tariffs selected unilaterally by governments with these hypothetical preferences would satisfy (2.16) and (2.17) and thus be efficient, where the evaluation of efficiency is undertaken with respect to the actual government preferences, they conclude that when governments have objectives that can be represented by the general form $W(p, p^w)$ and $W^*(p^*, p^w)$ subject to (2.9), the only rationale for a trade agreement is to eliminate the unilateral incentive that governments have to manipulate their terms of trade.

Whether the politically optimal tariffs are seen as a particular point on the efficiency frontier that can be usefully compared to the first-order conditions that define the noncooperative tariffs as I have emphasized here, or rather are seen as a useful hypothetical thought experiment for noncooperative tariff choices as

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[16]See Bagwell and Staiger (1999, 2002 chapter 4) for a development of this point from the perspective of GATT's reciprocity rule.

in the original Bagwell and Staiger (1999, 2002) presentation, is immaterial. As long as politically optimal tariffs as defined by (2.16) and (2.17) are efficient in a given environment, we can conclude from the Nash first-order conditions (2.10) and (2.11) that the purpose of a trade agreement in that environment is to eliminate the unilateral incentive that governments have to manipulate their terms of trade.[17]

Positive, but also normative?   Now is a good time to pause and consider a question that has been lurking behind the approach that I have adopted above for identifying the purpose of a trade agreement. I have taken as given the sovereign right of each national government to define its own policy preferences. I have then sought to characterize the task that a trade agreement must accomplish if it is to eliminate the international inefficiencies associated with unilateral policy choices as judged by the preferences of the member governments. I have called this task the purpose of a trade agreement. As the GATT/WTO is a member-driven organization, and as the members are national governments, this seems to be a reasonable approach from which to draw positive conclusions about the purpose of a trade agreement. But can this approach also be seen as having normative implications? Is it enough for the world trading system to serve the interests of its member *governments*? Can a case for the legitimacy of the GATT/WTO be built around a demonstration that it is well-designed to serve these interests, where by legitimacy I have in mind a "right to rule" concept along the lines articulated by Buchanan and Keohane (2006)?[18]

If national governments were always and everywhere the faithful servants of their citizens, where the desires of their citizens were aggregated into policy directives for the governments through political processes that their citizens saw as legitimate, then the answers to these questions would clearly be "Yes." But most real-world governments operate far from this ideal. And so, in the real world, the answers are not so clear.

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[17]Notice that I have said nothing about whether a trade agreement would actually implement the political optimum, or rather some other efficient pair of tariffs. For my purposes here, the point is simply that the politically optimal tariffs are useful as a comparator to noncooperative tariffs when evaluating the purpose of a trade agreement.

[18]Buchanan and Keohane (2006, p. 411) define legitimacy in the case of global governance institutions as "the right to rule, understood to mean both that institutional agents are morally justified in making rules and attempting to secure compliance with them and that people subject to those rules have moral, content-independent reasons to follow them and/or to not interfere with others' compliance with them." See also Franck (1990).

Looking to the international political economy literature for guidance on these questions provides a mixed view. On the specific question of what determines the legitimacy of an international institution, Peter (2017) notes that there are two approaches in the literature, a "state-centered" approach and a "people-centered" approach. Beitz (1979, p. 408) describes the state-centered approach as one in which "international society is understood as domestic society writ large, with states playing the roles occupied by persons in domestic society." In the people-centered approach, it is instead the welfare of individuals that is taken as the basis for the determination of an international institution's legitimacy (see Buchanan, 2003). If the purpose of a trade agreement that I have identified above can be interpreted as having normative relevance, then establishing a claim of legitimacy for the GATT/WTO based on a demonstration that it is well-designed to serve this purpose falls squarely on the state-centered approach: under this interpretation, like consumers in a domestic context the preferences of national governments are taken as sovereign in the international context, and the legitimacy of a trade agreement is judged on its ability to deliver efficient outcomes where efficiency is assessed using the preferences of the member governments.[19] This interpretation seems tenuous, but what are the viable alternatives?

One possibility would be to dispense completely with the nation-state as the unit of observation for normative purposes, and to evaluate the legitimacy of the GATT/WTO based on how close the agreement comes to maximizing a global social welfare function defined over the welfare of individuals. This would amount to a people-centered approach. For example, the GATT/WTO's design might be judged with a criterion based on a utilitarian ideal, where global welfare is measured by the sum of the utilities across all individuals in the world and where each individual's utility enters that sum with an equal weight.[20] Or a Rawlsian criterion, under which global social welfare is only as high as the utility of the least-well-off individual on the planet, might be used to judge the design of the agreement. As a general matter it is of course important to know how an agreement performs according to these normative benchmarks. But as a means to evaluate the legitimacy of the GATT/WTO these benchmarks seem unwork-

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[19]To be clear, while this approach can be described as state-centered, it is otherwise quite distinct from the approaches to evaluating legitimacy featured in the international political economy literature and reviewed in Peter (2017), as it uses a different set of (state-centered) criteria.

[20]See Maggi and Ossa (2020) for an approach to evaluating the normative properties of a trade agreement along these lines.

able, because to proceed with such an evaluation would require that a consensus emerge regarding the correct normative benchmark, and it seems unlikely that such a consensus could ever exist.[21]

Another possibility for assessing legitimacy would be a hybrid approach somewhere in between the state-centered and people-centered approaches, maintaining the nation-state as the unit of observation but including more interests from each nation in the global social welfare function than simply the interests of each member government. Such an approach might, for example, mirror the "tripartite" structure of national representation in the International Labor Organization (ILO), where each member country is represented by three national interests: its government, its workers, and its employers. The analog for assessing the legitimacy of the GATT/WTO might be to include in the global social welfare function used in that assessment representatives of government, exporter and importer interests in each member country. But again a consensus on the appropriate representation would be needed to make this approach workable.[22]

In light of these consideration, it is useful to think of the question of the legitimacy of the world trading system as applying at two levels. First, at the international level there is the question whether the GATT/WTO can be seen as legitimate from the perspective of the member governments. And second, at the national level there is the question whether the member governments can be seen as legitimate from the perspective of their own citizens. If both questions can be answered in the affirmative, then the GATT/WTO can be said to be legitimate from both the state-centered and the people-centered perspective. But as trade agreements are fundamentally government-to-government contracts, the key question of legitimacy for the GATT/WTO as an international institution – and the only question whose answer it has any meaningful control over – relates

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[21]Partly the difficulty in reaching a consensus on this matter rests with the simple fact that it involves value judgements over which there will always be disagreements. And partly the difficulty can be traced to disagreements over factual matters, such as the importance of market failures and the array of policy instruments that real-world governments have at their disposal to pursue their objectives.

[22]There is also another issue raised by moving away from a state-centered approach to evaluating the legitimacy of a trade agreement: if interests beyond those of the member governments are to be represented in a trade agreement, how are commitments that serve those interests but not also the interests of the member governments to be enforced? This issue seems germane for the GATT/WTO, where enforcement ultimately comes down to tariff retaliation and governments hold the levers of this enforcement mechanism, and it may explain why under the ILO's tripartite representation (unique among United Nations agencies) no member state is under any obligation to ratify any ILO convention or recommendation (see Johnston, 1970, p. 90).

to the first question, not the second.

My approach is to therefore focus on the answer to the first question – Does the GATT/WTO have the moral authority to make rules and attempt to secure compliance with those rules from its member governments, or not? – and to acknowledge that an answer to this question can provide only part of the answer to the larger question of the legitimacy of the world trading system. But it is an important part of the answer. If this first question *cannot* be answered in the affirmative, then it is hard to see how the GATT/WTO could remain viable, since it would presumably lack support from the governments who are its members. And if this question can be answered in the affirmative, then the central *international* task in designing a constitution for the world trading system has been accomplished with the design of the GATT/WTO. And with this state-centered task accomplished, attention could then be focused on the task of establishing that each national government satisfies agreed criteria for legitimacy, thereby ensuring that the world trading system so designed could be said to be legitimate from a people-centered perspective as well.

Generality   Thus far I have emphasized the wide array of government objectives that are consistent with the conclusion that the purpose of a trade agreement is to eliminate the unilateral incentive that governments have to manipulate their terms of trade. But I have maintained a very particular and simple economic environment within which to derive these results. How dependent is this conclusion on the economic environment within which governments operate? An immediate implication of the discussion above is that this conclusion does depend on governments having a complete set of trade taxes at their disposal. This can be seen from the definition of politically optimal tariffs, which in general requires the use of both τ and τ^* to satisfy the two conditions in (2.16) and (2.17).[23] As has been emphasized by Ossa (2011) and Bagwell and Staiger (2012a, 2015, 2016), when limitations are placed on the trade taxes that governments possess, different roles

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[23] An exception to this is when the government objective functions take the particular form in (2.5) and (2.6) and the politically optimal tariffs correspond to reciprocal free trade, a point on the Mayer locus. In this case, if only one of the two governments had access to a tariff, it could still be concluded that the purpose of a trade agreement is to eliminate the unilateral incentive that this government has to manipulate its terms of trade, because at the political optimum neither government imposes a tariff so it is immaterial that one of them does not have access to a tariff. Also, to be clear, notice that for the arguments in the text to remain valid there is no requirement that governments have a complete set of *tax* instruments, only that they have a complete set of *trade* taxes.

for a trade agreement can arise. That said, some of the most salient restrictions on trade tax/subsidy instruments are associated with commitments made as a *result* of trade agreements (e.g., to restrict the use of export subsidies), and it is not clear that such restrictions should be taken as given when attempting to identify the underlying purpose of trade agreements as is my intent here.

Beyond the assumption that governments have a complete set of trade taxes, however, the conclusion that the purpose of a trade agreement is to eliminate the unilateral incentive that governments have to manipulate their terms of trade is surprisingly robust to alternative economic environments. It holds in a many-country version of the model I have outlined above provided that tariffs are imposed on a nondiscriminatory (MFN) basis (see Bagwell and Staiger, 1999, 2002), and it holds in partial equilibrium versions of these models (see Bagwell and Staiger, 2001a). It holds in competitive environments for trade in goods or trade in services when governments have access to regulatory standards and/or additional domestic tax/subsidy policies (see Bagwell and Staiger, 2001b, and Staiger and Sykes, 2011, for trade in goods, and Staiger and Sykes, 2021, for trade in services). And it holds in models of Cournot or monopolistic competition with homogeneous firms (see Bagwell and Staiger, 2002 chapter 9, 2012a,b, 2015) and in models of monopolistic competition with heterogeneous firms (see Bagwell and Lee, 2020, Campolmi, Fadinger and Forlati, 2020, and Costinot, Rodriguez-Clare and Werning, 2016, forthcoming). For this reason, it is useful to adopt a common shorthand for referring to models that share this prediction about the purpose of a trade agreement, and I will follow Bagwell and Staiger's (2002) terminology and sometimes make use of the phrase "terms-of-trade theory of trade agreements" as a catchall for models of this kind.[24]

This is not to say that preventing terms-of-trade manipulation is the only possible purpose for a trade agreement. Indeed, as I noted at the outset of this chapter, I am intentionally abstracting from the possibility that a trade agreement could serve as a policy commitment device for its member governments when those governments struggle to make policy commitments to their private sectors on their own. And as I review in Staiger (2021), the arguments I have made here do not extend to all economic environments; and as I alluded to in chapter 1, some of the environments where these arguments do not extend may be more important in the twenty-first century than they were in the twentieth century, raising the possibility of an evolution of the purpose of trade agreements over time. But as I have illustrated here, these arguments do apply in a remarkably broad set of

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[24]But see Grossman (2016) for a different perspective on this terminology.

circumstances, suggesting that a trade agreement that is designed well to solve the terms-of-trade manipulation problem will be a very useful trade agreement to its member governments. From this perspective, it is therefore meaningful when assessing the reasons for GATT's success and determining the basis for its legitimacy to evaluate the degree to which its design features are well-equipped to serve this function. It is to this evaluation that I now turn.

3. What Do Trade Negotiators Negotiate About?

In chapter 2 I presented formal arguments that point to the elimination of terms-of-trade manipulation as the central purpose of a trade agreement, and I suggested that this provides a natural dimension on which to evaluate the design features of GATT: How well-designed is GATT to help its member governments solve the terms-of-trade manipulation problem and thereby escape from a terms-of-trade driven prisoner's dilemma? In this and the next chapter I evaluate GATT's design as it relates to tariff bargaining, the foundational activity in the GATT/WTO.[25] After some preliminaries, I begin this evaluation by asking what negotiators negotiate about in the GATT/WTO. If there is no evidence that these negotiations serve to remove the imprint of market power from unilateral tariff choices, then there is little point in asking whether the design features of the GATT/WTO can be interpreted as helping to serve this purpose.

3.1. Preliminaries

Three of the most basic features of GATT tariff negotiations raise questions about the wisdom of GATT's design and the negotiating behavior it induces, and pose an immediate challenge to the terms-of-trade theory if these features are to be interpreted through the lens of that theory. Why do governments adopt a mercantilist approach in GATT/WTO negotiations, viewing their own tariff cuts as "concessions" to be granted only in return for foreign tariff cuts from their trading partners? What accounts for the emphasis on market access that permeates the language of GATT/WTO tariff negotiations? And how can governments hope to achieve meaningful benefits from GATT/WTO negotiations anyway, if their negotiations are focused narrowly on tariffs to the exclusion of the myriad other gov-

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[25] In Staiger (2021, chapter 5) I review research that sheds further light on GATT's design as it relates to tariff bargaining by evaluating the performance of tariff bargaining in the absence of GATT rules.

ernment interventions that can also have trade effects? Since any model of trade agreements that purports to capture the underlying logic of the GATT/WTO must be able to account for these basic features of GATT tariff negotiations, I begin this chapter by considering how these three questions can be answered within the modeling framework of chapter 2.

If we assume that tariff negotiations begin from the noncooperative tariff choices characterized by (2.10) and (2.11), the first question has an immediate answer: beginning from their tariff reaction curves, governments should view *any* change in their own tariffs as a concession, to be granted only in return for something that they would value from their negotiating partner; and as I have described in chapter 2, from this starting point each government would indeed gain from at least a small *cut* in its own tariff, if its trading partner agreed to *reciprocate* with a tariff cut of its own that was calibrated to preserve the terms of trade between them (and recall from the first inequality in (2.4) that it is indeed a downward movement in the trading partner's tariff that would achieve this). Hence, while the government behavior singled out by this first question might seem surprising and somehow mercantilist if one took the view that the logic of trade negotiations should be based on the economist's case for free trade, from the perspective of the terms-of-trade theory of trade agreements embodied in the modeling framework of chapter 2 this behavior is not surprising at all: there is no other way that governments *could* behave.[26]

The answers to the second and third questions are related to each other, and more nuanced. A first observation is that GATT tariff negotiations are indeed considered negotiations over *market access*, with tariff commitments treated as commitments to *conditions of competition* in the domestic market between domestic producers and foreign suppliers.[27] I have developed the modeling framework of chapter 2 without reference to the phrase "market access restrictions," making use instead of the phrase "terms-of-trade improvement." But as Bagwell and Staiger (2002, pp 28-30) have shown, a direct link between these two phrases is easily forged: when the home government raises its import tariff and thereby shifts in its import demand curve, the consequent "price effect" (i.e., the home country's

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[26]Bagwell and Staiger (2002, pp 191-192) provide the proof in this setting that a trade agreement must entail tariff cuts by each country if it is to improve upon the noncooperative welfare levels for each country.

[27]As a GATT/WTO legal matter, market access is defined by the competitive relationship between imported and domestically produced products, and a negotiated tariff commitment is treated as a commitment to a particular competitive relationship between imported and domestic products and hence a market access commitment.

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terms-of-trade improvement) has a corresponding "volume effect" (i.e., the foreign country's reduction in access to the home market). Viewed from this perspective, the terms-of-trade theory has no difficulty accounting for the fact that real-world negotiators emphasize the market-access implications of trade policy.[28]

To illustrate the point more formally, I follow Bagwell and Staiger (2002, pp 28-30) and, for a given world price p^w and home tariff τ, define the market access that the home country affords to the foreign country by the home-country import demand function evaluated at that world price and home tariff level, $M_x(p(\tau, p^w), p^w)$; and similarly, given a world price p^w and a foreign tariff τ^*, I define the market access that the foreign country affords to the home country by $M_y^*(p^*(\tau^*, p^w), p^w)$. Let us now say that a government secures additional market access from its trading partner through negotiations if the trading partner's negotiated policy changes shift out its import demand curve for at least *some* world price. According to this definition, if the home government were to *fail* to secure additional market access as a result of the foreign government's agreed policy changes, then the foreign import demand curve would shift in (weakly) at all world price levels and lead to a (weakly) higher equilibrium world price $\widetilde{p}^w$ and therefore a terms-of-trade loss (weakly) for the home country, assuming that the Marshall-Lerner stability conditions are met. With the link between changes in market access and changes in the terms of trade established, the findings of the terms-of-trade theory can be translated into the language of market access. For instance, it may be confirmed (see Bagwell and Staiger, 2001b) that the essential inefficiency arising in the noncooperative tariff choices characterized by (2.10) and (2.11) can be described as one of insufficient market access. Hence, the modeling framework of chapter 2 provides a rationale for why governments would emphasize the market-access implications of trade policy and seek to expand market access in their tariff negotiations. This answers the second question posed above.

In answer to the third question, a starting point is to observe that, while governments do focus narrowly on tariffs in their market access negotiations, it is not true that this focus is to the exclusion of the myriad other government interventions that can also have trade effects through their impacts on the conditions of competition. Indeed, it is the purpose of many of the GATT Articles which lay down the code of conduct that I described in chapter 2 to ensure that non-tariff

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[28] This emphasis can be seen, for example, in the following excerpt from a GATT dispute panel report (as quoted in Petersmann, 1997, p. 168): "...the main value of a tariff concession is that it provides assurance of better market access through improved price competition. Contracting parties negotiate tariff concessions primarily to obtain that advantage."

policy interventions do not unilaterally alter the market access implications of a negotiated tariff commitment, and thereby to secure the property rights over negotiated market access that a tariff commitment implies.[29]

The real issue raised by this third question, then, is whether governments can negotiate to the efficiency frontier under the *shallow* approach to liberalization that GATT embodies, whereby governments negotiate only over tariffs and where the tariff commitments they make translate into market access commitments as a result of the accompanying GATT Articles. Is it possible to reach the efficiency frontier with respect to *all* government policies when governments negotiate directly only over tariffs in this way? As I next demonstrate, the answer according to the terms-of-trade theory is, at least in principle, "Yes."

To this end, I now extend the modeling framework sketched out in chapter 2 to allow governments to also choose regulatory standards. To keep things simple, I will focus on a production standard, such as a minimum legal working age or a maximum legal emissions level per unit of output, which might be applied to a particular sector or on an economy-wide basis, and which could potentially alter the shape of the country's production possibilities frontier and hence, for given local prices, its production choices. Below I sketch arguments that can be found in more detail in Bagwell and Staiger (2001b).[30]

Letting σ denote the standard in the home country and σ^* the standard in the foreign country, it is direct to show that introducing these standards into the modeling framework of chapter 2 will result in two changes to the model. First, the equilibrium world price determined by the market clearing condition will now take the form $\widetilde{p}^w = \widetilde{p}^w(\sigma, \sigma^*, \tau, \tau^*)$: that is, in addition to its tariff, a country's standard will also impact the equilibrium world price through its impact on the shape of the country's production possibilities frontier. And second, as each government may have its own reasons to set its own standard, the home and foreign government objectives are now represented respectively by $W(\sigma, p(\tau, \widetilde{p}^w), \widetilde{p}^w)$ and

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[29]For example, Petersmann (1997, p. 136) observes that "...the function of most GATT rules (such as Articles I-III and XI) is to establish conditions of competition and to protect trading opportunities...".

[30]These arguments have been extended to the case of domestic production subsidies and to the case of competition policy by Bagwell and Staiger (2006) and Bagwell and Staiger (2002, chapter 9), respectively, and to the case of product standards and domestic production and consumption taxes/subsidies by Staiger and Sykes (2011) for trade in goods and by Staiger and Sykes (2021) for trade in services. I discuss environments where these arguments do not hold, as pointed out by Antras and Staiger (2012a, 2012b) and Grossman, McCalman and Staiger (2021), in chapters 11 and 12 respectively of Staiger (2021).

$W^*(\sigma^*, p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w)$ satisfying

$$\frac{\partial W(\sigma, p, \widetilde{p}^w)}{\partial \widetilde{p}^w} < 0 \text{ and } \frac{\partial W^*(\sigma^*, p^*, \widetilde{p}^w)}{\partial \widetilde{p}^w} > 0$$

but otherwise left unrestricted as before. Importantly, as the government objectives reflect, I am assuming the absence of cross-border non-pecuniary externalities associated with standards choices, so that neither government cares *directly* about the standard chosen by the other government, but only indirectly through the possible *trade effects* of that choice. I am therefore excluding the possibility that the government of one country might care about how weak labor standards in its trading partner would impact the welfare of the trading partner's work force, but I am including the possibility that this government might care about the trade effects of the trading partner's weak labor standards and be concerned that these trade effects could fuel "race-to-the-bottom" pressures which led to the adoption of weak labor standards also in its own country.

It is straightforward to show that (2.15) continues to provide the condition for efficient tariffs in this extended setting. And when combined with this condition, the first-order conditions that the efficient standards must satisfy can be written in the following form:

$$W_\sigma + W_p \frac{dp}{d\tau} \frac{d\tau}{d\sigma}|_{d\widetilde{p}^w=0} = 0 \tag{3.1}$$

$$W^*_{\sigma^*} + W^*_{p^*} \frac{dp^*}{d\tau^*} \frac{d\tau^*}{d\sigma^*}|_{d\widetilde{p}^w=0} = 0. \tag{3.2}$$

The efficiency frontier is therefore attained when tariffs satisfy (2.15) and standards satisfy (3.1) and (3.2). The interpretation of (3.1) and (3.2) is central to understanding why a shallow approach to integration can work in this setting.

Consider the first-order condition for the efficient choice of the home-country standard σ. According to (3.1), σ should be chosen to maximize the welfare of the home government when the home government also adjusts its tariff τ so as to ensure that the equilibrium world price $\widetilde{p}^w$ does not change. The reason this standards choice is efficient is that, provided that $\widetilde{p}^w$ is not altered, the foreign government is indifferent to both the level of τ and the level of σ that the home government chooses, as can be confirmed by inspection of the foreign government's welfare function $W^*(\sigma^*, p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w)$; and so efficiency demands that the home government should also be indifferent to small changes in σ that, with the accompanying changes in τ defined in (3.1), preserve $\widetilde{p}^w$. But recalling now the

definition of market access introduced above, it is clear that the changes in σ and τ that preserve $\widetilde{p}^w$ are simply those changes that hold fixed the position of the home import demand curve evaluated at the initial equilibrium world price $\widetilde{p}^w$, and hence amount to changes in σ and τ that preserve the market access evaluated at the initial equilibrium world price $\widetilde{p}^w$ that the home government has granted to the foreign government through their tariff negotiations.

In this light, it can now be seen that a focus on tariff negotiations to achieve efficient levels of market access, in combination with a code of conduct spelled out in a set of GATT Articles that ensure that non-tariff policy interventions cannot unilaterally alter the market access implied of a tariff commitment, contains all the ingredients to allow governments, at least in principle, to reach the efficiency frontier in their settings of both tariffs *and* standards. In particular, as Bagwell and Staiger (2001b) demonstrate, if governments were to negotiate over tariffs alone, and if they were then permitted to make unilateral standards choices while also compelled by GATT's "market access preservation rules" to accompany these standards choices with tariff adjustments that preserve the market access implied by their negotiated tariff selections, then they would negotiate tariffs that satisfy (2.15) and make standards choices that satisfy (3.1) and (3.2). Evidently, with these "shallow" negotiations the governments would reach the efficiency frontier, and the terms-of-trade theory thereby provides a strong foundation for a shallow approach to negotiated trade liberalization. What is not provided by the arguments I have reviewed here is a formal explanation for why governments would prefer this method of liberalization to the alternative of deep integration where the governments negotiate directly over all policies, both tariffs and non-tariff instruments.[31]

Notice also that the terms-of-trade theory provides an interpretation, with a twist, of the common observation that GATT began with the "low hanging fruit" of tariff liberalization and only later had to confront the more difficult task of dealing with behind-the-border measures. The twist is that, according to the terms-of-trade theory, the fundamental problem for a trade agreement to address has not changed; it is simply that as tariffs were negotiated downward, the pressure to distort behind-the-border policies for inefficient terms-of-trade

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[31] In Staiger (2021, chapter 13) I consider the question of why governments might prefer shallow over deep integration and suggest one possible answer. Also, while there is a basic affinity between the theoretical arguments I have presented here and the shallow approach to trade liberalization embodied in GATT/WTO rules, see Bagwell and Staiger (2001b) for modifications to GATT/WTO rules that would more closely align those rules with these theoretical arguments.

manipulation reasons grew, and the initial GATT rules that were supposed to ensure a code of conduct in the international-trade arena to prevent such behavior proved inadequate for the task. The result has been a growing focus over time on addressing the trade distorting aspects of non-tariff barriers. Importantly, what is revealed under this interpretation is that there are two plausible ways to respond to this challenge. One response is to give up on GATT's shallow approach to integration and the rules applying to behind-the-border measures that were meant to facilitate that approach, and to pursue instead deep integration. But an alternative response, and one which as a matter of principle the terms-of-trade theory puts on equal footing, is to maintain GATT's basic approach and work to strengthen the rules that could facilitate shallow integration.

Finally, it should be acknowledged that in the discussion above I have abstracted from a number of challenges that a shallow approach to integration must overcome in practice; and in reality the line between shallow and deep integration is not as stark as the model above makes it out to be. At a more practical level, therefore, the message of the terms-of-trade theory is not so much that *no* degree of deep integration is necessary to reach the efficiency frontier, but rather that the market access orientation of the GATT/WTO can provide a potentially useful *guardrail* to delineate the "depth" of integration that trade agreements should be willing to contemplate in order to reach the efficiency frontier: according to the terms-of-trade theory, there is no reason for a trade agreement to go deeper than what is required to ensure that property rights over negotiated market access are reasonably secure. Such a guardrail can help governments avoid conflicts between globalization and national sovereignty that, according to the terms-of-trade theory, would be unnecessary.

This answers the third question posed above. With these most basic questions addressed, I now turn to the central question of this chapter: What do trade negotiators negotiate about?

3.2. Evidence from WTO accession negotiations

If the GATT/WTO is well-designed to help its member governments escape from a terms-of-trade driven prisoner's dilemma, there should be evidence of this in the pattern of tariff cuts that the member governments agree to in a GATT/WTO negotiation. Looking for such evidence would be simple if all governments sought to maximize the real national income of their citizens with their tariff choices and negotiations were assumed to take governments to the political optimum: one might

simply look to see how close governments got to reciprocal free trade as a result of their negotiations. But when governments have diverse preferences over trade policy, such as is reflected in the objective functions that I have adopted in the modeling framework of chapter 2, things are not as straightforward. According to the terms-of-trade theory, if governments are able to negotiate to the political optimum, what should remain after the GATT/WTO negotiations are completed is the portion of each government's noncooperative tariff choices that are not driven by the international cost shifting that is associated with terms-of-trade manipulation. The challenge in evaluating the performance of GATT/WTO negotiations is then to disentangle these two components of noncooperative tariffs, so that the magnitude of the cost-shifting component reflected in the noncooperative tariff levels can be compared to the magnitude of the negotiated tariff cuts.

Of course, this all presupposes that governments would be caught in a terms-of-trade driven prisoner's dilemma in the absence of tariff negotiations, which in turn requires that countries possess significant and widespread market power in world markets, and that the unilateral tariff choices of governments reflect the market power that they possess. Broda, Limao and Weinstein (2008) provided the first systematic evidence on these prior questions, and as I noted in chapter 1 they find strong evidence that countries routinely have market power in their import markets and use it in setting noncooperative trade policy.[32] Here I focus on the pattern of tariff liberalization in GATT/WTO negotiations. I describe the findings of Bagwell and Staiger (2011), who explore the degree to which the observed tariff cuts in WTO accession negotiations conform with the tariff cuts that, according to the terms-of-trade theory, would deliver governments to the political optimum.[33]

To identify the portion of a government's noncooperatively chosen tariff level that is driven by international cost shifting, I now return to the expressions for the noncooperative tariffs and the politically optimal tariffs presented in chapter

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[32] For a review of the broader empirical literature on these questions, see Bagwell, Bown and Staiger (2016). Recently a number of papers have exploited the aggressive use of tariffs by the Trump Administration and the tariff responses of its trading partners to investigate how local and world prices respond to the imposition of tariffs (see, for example, Amiti, Redding and Weinstein, 2019, Fajgelbaum, Goldberg, Kennedy and Khandelwal, 2020, and Cavallo, Gopinath, Neiman and Tang, forthcoming). I discuss the findings of these papers in the context of material presented in chapter 5 of Staiger (2021).

[33] See Bagwell and Staiger (2016, pp 488-492) for a discussion of why the political optimum, among all possible points on the efficiency frontier, might be viewed as a natural focal outcome of GATT/WTO negotiations.

2. Focusing on the home government, the expression for the noncooperative tariff in (2.10) can be rewritten as

$$Home\ Reaction\ Funcion : W_p = -W_{p^w}\left[\frac{\partial\widetilde{p}^w/\partial\tau}{dp/d\tau}\right],$$

while recall that the politically optimal tariff for the home government is defined in (2.16) by the condition

$$Home\ Political\ Optimum : W_p = 0.$$

I impose the assumption that $W_{pp} < 0$ holds globally over nonprohibitive tariffs. This condition must hold as long as W is globally concave over nonprohibitive tariffs even if the home country is small on world markets, so that there exists a unique solution to the home government's unilateral welfare-maximizing tariff choice. And I assume for the moment that if the home government were to cut its tariff from its reaction-curve level to its politically optimal level, the foreign government would respond with a tariff cut that was calibrated to hold the equilibrium world price $\widetilde{p}^w$ constant. With these assumptions, I can then write the difference between the home government's noncooperative tariff and its politically optimal tariff as

$$\tau^{BR} - \tau^{PO} = H\left(-W_{p^w}\left[\frac{\partial\widetilde{p}^w/\partial\tau}{dp/d\tau}\right]\right), \tag{3.3}$$

where I now denote by τ^{BR} the home government's "best–response" tariff that solves (2.10) for any foreign tariff, where $H(0) = 0$ and H is a decreasing function, and where all the magnitudes on the right-hand side of (3.3) are evaluated at the noncooperative tariff level τ^{BR}. Finally, rearranging (3.3) delivers an expression for the home government's politically optimal tariff, expressed in terms of magnitudes evaluated at its noncooperative tariff level:

$$\tau^{PO} = \tau^{BR} - H\left(-W_{p^w}\left[\frac{\partial\widetilde{p}^w/\partial\tau}{dp/d\tau}\right]\right). \tag{3.4}$$

In effect, (3.4) points to the term $-W_{p^w}\left[\frac{\partial\widetilde{p}^w/\partial\tau}{dp/d\tau}\right]$, evaluated at the home government's noncooperative tariff choice, as the determinant of the component of the home government's noncooperative tariff that is attributable to terms-of-trade manipulation and the international cost-shifting that it represents, and therefore as the determinant of the magnitude of the tariff cut which according to (3.3)

is required to move the home government from its noncooperative tariff choice to its politically optimal level. This term, which is weakly negative under (2.4) and (2.9), is composed of three sub-terms, each with a ready interpretation. The home country's market power on world import markets is reflected in $\partial \widetilde{p}^w / \partial \tau$, with (3.4) implying that $\tau^{PO} = \tau^{BR}$ when the home country is small on world markets and $\partial \widetilde{p}^w / \partial \tau = 0$, and with τ^{PO} falling further below τ^{BR} as the market power of the home country rises and $\partial \widetilde{p}^w / \partial \tau$ becomes increasingly negative. This market power effect is tempered by the magnitude of $dp/d\tau$, which reflects the size of the domestic distortion introduced by the home tariff and keeps τ^{PO} closer to τ^{BR} when this distortion, and hence $dp/d\tau$, is higher. Finally, $-W_{p^w}$ reflects the value that the home government places on a small improvement in its terms of trade; with its local prices held fixed when evaluating $-W_{p^w}$, this amounts to the degree to which the home government values the extra tariff revenue that is generated by the fall in p^w and the implied rise in $\tau = \frac{p}{p^w} - 1$, all evaluated at τ^{BR}. Notice that, as τ^{BR} approaches the prohibitive level and home imports shrink toward zero, $-W_{p^w}$ approaches zero (because the import volume on which tariff revenue is earned approaches zero) and τ^{PO} approaches τ^{BR} from below.

In order to take relationships like (3.3) and (3.4) to the data, Bagwell and Staiger work with a partial equilibrium many-good many-country version of the model of chapter 2 where income effects are absent. Under MFN tariffs, there continues to be a common world price $\widetilde{p}_g^{\,w}$ faced by all countries for each good g. For simplicity, I continue for now to couch the discussion in terms of a two-country home-and-foreign world, and only introduce notation for the many-country version of the model when that notation is needed.

In the partial equilibrium version of the model where all tariff revenue is spent on the numeraire good, the relationships in (3.3) and (3.4) hold for each non-numeraire good g, imports of good g depend only on the local price of good g, and $W_{p_g^w} = -M_g(p_g(\tau_g, \widetilde{p}_g^w))$, reflecting the fact that the magnitude of the (negative) income effect of a small deterioration in the home country's terms of trade for good g, holding its local price of good g fixed, is given by the volume of its imports of good g. Bagwell and Staiger then show that for home import good g, the term $W_{p^w} \left[\frac{\partial \widetilde{p}^w / \partial \tau}{dp/d\tau} \right]$ that enters (3.3) and (3.4) can be written equivalently as $\frac{M_g^{BR}}{p_g^{BR}} \left[\frac{\omega_g^{BR}}{\eta_g^{*BR}} \right]$, where ω_g^{BR} is the elasticity of home import demand (defined positively) for good g and η_g^{*BR} is the elasticity of foreign export supply of good g, and where the superscript BR indicates that the variable is evaluated at the best-response home tariff τ_g^{BR} for import good g. A particularly simple form of these

relationships arises in the special case of the model where demand and supply curves are linear. In this case, and focusing on (3.3), the difference $\tau_g^{BR} - \tau_g^{PO}$ is proportional to $\frac{M_g^{BR}}{\widetilde{p}_g^{wBR}}$: that is, according to the terms-of-trade theory, if governments use their GATT/WTO negotiations to move from noncooperative tariffs to the point on the efficiency frontier at which they each adopt politically optimal tariffs, then when demands and supplies are linear their negotiated tariff cuts should rise proportionately with the ratio of pre-negotiation (noncooperative) import volume to world price.

A challenge in taking these predictions to the data is that they are developed in a static model where tariff negotiations are conceived as a one-off event that carries countries from their noncooperative tariff choices to the politically optimal tariffs. In fact, as I have described in chapter 2, there have been eight completed rounds of GATT negotiations spanning many decades and culminating in 1995 with the completion of the Uruguay Round and the creation of the WTO. This gradual liberalization process complicates the possibility of a straightforward application of the predictions embodied in (3.3) and (3.4) to the observed negotiated tariff cuts of the GATT/WTO membership.

To overcome this challenge, Bagwell and Staiger focus on a set of non-GATT-member countries who joined the WTO in separate accession negotiations occurring after the Uruguay Round was completed. These accession negotiations come close to the one-off negotiating events that the model envisions. The maintained hypothesis is that, at the time of these negotiations, existing GATT/WTO members had largely completed the process of negotiating their tariffs to politically optimal levels, and new members were therefore asked to agree to once-for-all tariff cuts from best-response to politically optimal levels in exchange for the rights of WTO membership. A limitation of this focus is that it excludes from the evaluation of GATT/WTO tariff liberalization the major industrialized countries, who were all original or early GATT members and who historically have been the dominant actors in GATT/WTO tariff negotiations. I will return to this point below. Figures 3.1 and 3.2 (reproduced from Bagwell and Staiger, 2011) confirm that the patterns of tariff liberalization predicted by (3.3) are present in the data.

For a sample of 16 countries that negotiated membership in the WTO subsequent to its creation in 1995, Figure 3.1 plots on the vertical axis the percent deviation from mean negotiated tariff cut, and on the horizontal axis the decile of pre-negotiation import volume to world price, $\frac{M_{gc}^{BR}}{\widetilde{p}_g^{wBR}}$, where the subscript c now indexes these acceding countries and the subscript g refers to an HS six-digit

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product. Evidently, negotiated tariff cuts rise in a roughly proportional way with normalized pre-negotiation import volume $\frac{M_{gc}^{BR}}{\widetilde{p}_g^{wBR}}$, as is predicted by the version of (3.3) that applies to a partial equilibrium model where demands and supplies are linear. And for a sample of 5 of these countries where the estimates of ω_{gc}^{BR} and η_{gc}^{*BR} from Broda, Limao and Weinstein (2008) are available, Figure 3.2 plots the percent deviation from mean negotiated tariff cut by decile of $\eta^{BR} \equiv \frac{M_{gc}^{BR}}{p_{gc}^{BR}} \left[\frac{\omega_{gc}^{BR}}{\eta_{gc}^{*BR}} \right]$, revealing a strong positive relationship as the terms-of-trade theory predicts.
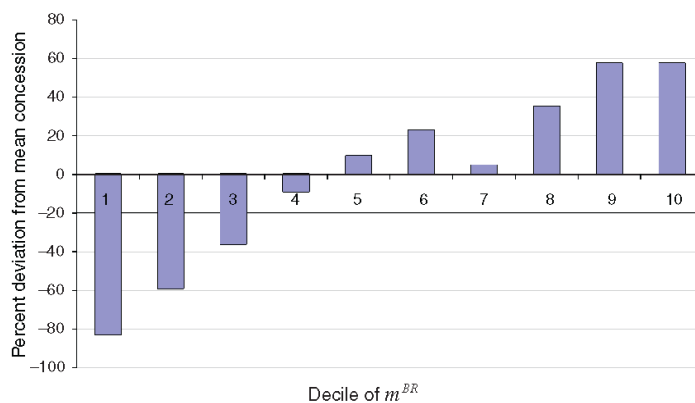

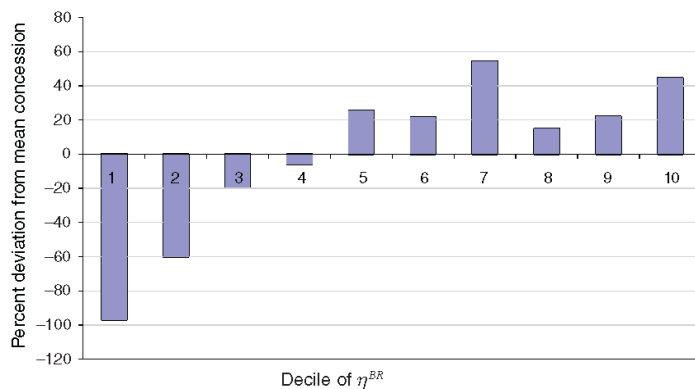Figure 3.1 (Reproduced from Bagwell and Staiger, 2011)

Figure 3.2 (Reproduced from Bagwell and Staiger, 2011)

Bagwell and Staiger also present regression results based on the relationship in (3.4), both for their partial equilibrium model with general demands and supplies and for the special case of that model in which demands and supplies are linear.

Recall that in deriving (3.3) and (3.4) I assumed that if the home government were to cut its tariff from its reaction-curve level to its politically optimal level the foreign government would respond with a tariff cut that was calibrated to hold the equilibrium world price $\widetilde{p}^w$ constant. To derive relationships that form the basis of their estimated regressions, Bagwell and Staiger relax this assumption and allow for more general tariff responses from trading partners (or no response at all). As they demonstrate, this influences the interpretation of some of the estimated coefficients in their regressions, but does not change the essential predictions of the terms-of-trade theory with regard to the pattern of tariff liberalization that should be observed: if WTO negotiations implement the efficient political optimum, then controlling for the level of the pre-negotiation tariff τ_{gc}^{BR}, the tariff level on imports of good g to which the government of country c agrees in a WTO negotiation should be lower the larger is the magnitude of the pre-negotiation normalized import volume $\frac{M_{gc}^{BR}}{\widetilde{p}_g^{wBR}}$ (in the case of linear demands and supplies) or more generally the larger is the pre-negotiation cost-shifting term $\frac{M_{gc}^{BR}}{p_{gc}^{BR}}\left[\frac{\omega_{gc}^{BR}}{\eta_{gc}^{*BR}}\right]$. Estimating regressions of the form

$$\tau_{gc}^{WTO} = \beta_0 + \beta_1 \tau_{gc}^{BR} + \beta_2 \frac{M_{gc}^{BR}}{\widetilde{p}_{gc}^{wBR}} + \epsilon_{gc} \tag{3.5}$$

and

$$\tau_{gc}^{WTO} = \phi_0 + \phi_1 \tau_{gc}^{BR} + \phi_2 \frac{M_{gc}^{BR}}{p_{gc}^{BR}}\left[\frac{\omega_{gc}^{BR}}{\eta_{gc}^{*BR}}\right] + \upsilon_{gc}, \tag{3.6}$$

where τ_{gc}^{WTO} is the ad valorem tariff level bound by acceding country c on HS six-digit product g in its GATT/WTO negotiation and ϵ_{gc} and υ_{gc} are error terms, Bagwell and Staiger find robust evidence that $\hat{\beta}_1 > 0$ and $\hat{\beta}_2 < 0$ and that $\hat{\phi}_1 > 0$ and $\hat{\phi}_2 < 0$, as the terms-of-trade theory predicts.

I noted earlier that a limitation of the Bagwell and Staiger (2011) paper is that, in focusing on non-GATT-member countries who joined the WTO in accession negotiations after the Uruguay Round was completed, the paper excludes from the evaluation of GATT/WTO tariff liberalization the major industrialized countries, who were all original or early GATT members and who historically have been the dominant actors in GATT/WTO tariff negotiations. This limitation is addressed by Ludema and Mayda (2013), who extend the search for tariff bargaining evidence consistent with the terms-of-trade theory to a broader and more representative cross section of the GATT/WTO membership.

To develop the prediction that they take to the data, Ludema and Mayda (2013) work within a partial equilibrium perfectly competitive many-good many-country model along the lines employed by Bagwell and Staiger (2011). In this model, as I have observed above, the purpose of a trade agreement is to eliminate the implications of market power from the unilateral tariff choices that governments would otherwise make. But while Bagwell and Staiger assess the extent to which the observed tariff cuts in WTO accession negotiations conform to the tariff cuts that would implement the political optimum and hence can be understood from the perspective of the terms-of-trade theory as allowing governments to reach the efficiency frontier, Ludema and Mayda assess the extent to which free-riding by non-participants in the negotiations and the consequent *failure* of GATT/WTO tariff bargaining to reach the efficiency frontier can be understood from the perspective of the terms-of-trade theory.

In particular, to capture key features of the GATT/WTO tariff bargaining process, Ludema and Mayda (2013) posit an extensive form tariff negotiation game in which countries negotiate bilaterally over MFN tariffs and participation is endogenous.[34] They exploit the fact that, when importing country c cuts an MFN tariff on product g, all exporting countries facing that tariff enjoy the same terms-of-trade improvement, $\partial \widetilde{p}_g{}^w / \partial \tau_{gc}$, the magnitude of which depends on country c's market power. But recall that in this partial equilibrium setting the magnitude of the (negative) income effect of a small deterioration in country c's terms of trade for good g, holding fixed its local price of good g, is given simply by the volume of its imports of good g, $W_{p_g^w}^c = -M_{gc}(p_{gc}(\tau_{gc}, \widetilde{p}_g^w))$; and the flip side is that the (positive) income effect of the implied terms-of-trade improvement that is enjoyed by each exporting country c^* varies in proportion to its *share* of country c's total imports of product g: $W_{p_g^w}^{c^*} = \theta_{gc}^{c^*} \times M_{gc}(p_{gc}(\tau_{gc}, \widetilde{p}_g^w))$, where $\theta_{gc}^{c^*}$ is the share of country c's imports of good g that is supplied by exporting country c^*.

Ludema and Mayda (2013) show that in the model of MFN tariff bargaining with endogenous participation that they propose, if inefficiency occurs in equilibrium in the negotiation over τ_{gc}, it occurs because exporters of good g to country c below a critical export-share threshold – who by the above logic have less to gain from a reduction in τ_{gc} – choose not to participate in the negotiation with country c over τ_{gc}, and choose instead to free ride on the MFN tariff cut that

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[34]I discuss the tariff negotiation game posited by Ludema and Mayda (2013) again at various points in chapter 4 and also in chapter 5 of Staiger (2021), when I compare their approach to modeling GATT tariff negotiations with the approaches adopted by Bagwell, Staiger and Yurukoglu (2020a, 2020b, forthcoming).

country c agrees to in its negotiation over τ_{gc} with the exporters of good g to country c above the critical export-share threshold who, having the most to gain from a reduction in τ_{gc}, choose to participate in the negotiations. And Ludema and Mayda show that an implication of this finding is that where exporters of a good g into country c are less concentrated as measured by the Herfindahl index, free-riding in GATT/WTO tariff negotiations will be more of a problem, and the negotiated level of τ_{gc} will continue to bear more of the imprint of country c's market power than in the case where exporters are highly concentrated.

It is this relationship between exporter concentration and the degree to which negotiated tariff levels continue to reflect importer market power, derived by Ludema and Mayda (2013) in a setting that appends a particular model of tariff bargaining to an underlying model conforming to the terms-of-trade theory of trade agreements, that Ludema and Mayda take to the data. Focusing on 36 GATT members that include all of the major industrialized countries as well as a number of developing and emerging economies, they find that as a result of the free-rider effects created by MFN, between one tenth and one quarter of the tariff liberalization that would have been required in the Uruguay Round to completely eliminate the imprint of market power from these tariff schedules and bring these countries all the way to the efficiency frontier did not occur. As I noted above, Ludema and Mayda therefore provide an important quantification of the failure of GATT/WTO tariff bargaining to reach the efficiency frontier as a result of the MFN free-rider effect in the Uruguay Round. But along the way they also provide strong confirmation of the predictions of the terms-of-trade theory itself for a wide cross-section of the GATT/WTO membership, concluding that the terms-of-trade-manipulation motive drives unilateral tariff choices and that GATT tariff negotiating rounds were intended to neutralize this motive.

Like Ludema and Mayda (2013), other recent papers have also found evidence consistent with the predictions of the terms-of-trade theory in the negotiated tariff outcomes of a wide cross-section of the GATT/WTO membership. For example, Nicita, Olarreaga and Silva (2014) focus on the nature of the tariff commitments made by WTO member countries – commitments that as I have noted take the form of bindings defining the maximum allowable level for the tariff – and exploit the fact that countries differ in the degree to which their negotiated WTO tariff commitments constrain their applied tariffs (i.e., the tariff levels that they actually set). Developing a prediction of the terms-of-trade theory that relates both the tariffs that are applied at the level of the binding and those that are applied below the binding to measures of a country's market power, and examining the tariffs

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of 101 WTO member countries, Nicita, Olarreaga and Silva find evidence broadly consistent with this prediction.[35] Beshkar and Bond (2017) similarly use the terms-of-trade theory to develop a relationship between the market power that a country wields on the one hand, and on the other hand the levels at which it binds its tariffs in GATT/WTO negotiations and the tariffs that it actually applies – in this case exploiting the fact that, as described in chapter 2, a country can under certain conditions escape from its tariff bindings and set applied tariffs above the binding – and find support for the relationship predicted by the terms-of-trade theory in this regard in the tariffs of 109 WTO members.[36]

Together these papers provide reinforcing evidence that the observed pattern of negotiated tariff cuts in the GATT/WTO correlates with the pattern of observed market power in the way that the terms-of-trade theory suggests that it should.

4. Tariff Bargaining in the GATT/WTO

In chapter 3 I presented evidence that countries use GATT negotiations to help them remove the imprint of market power from their unilateral tariff choices. In this chapter I move on to the next logical question: How well-designed is GATT to help its member governments achieve this purpose? A unique feature of the GATT/WTO is that detailed bargaining records for many of its negotiation rounds are available to researchers and can be used to help answer this question.[37] With access to these bargaining records, it is possible to probe beyond the outcomes of GATT/WTO negotiations and examine the features of the bargaining behavior that led to those outcomes. In this chapter I describe recent research that makes use of these records.

Each GATT/WTO round proceeds under a specific tariff bargaining protocol. The first five GATT rounds involved selective product-by-product MFN tariff

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[35]See also Beshkar, Bond and Rho (2015) for related findings that focus on the relationship predicted by the terms-of-trade theory between market power and the *difference* between the bound and applied level of the tariff ("tariff overhang") and find empirical support for this relationship in tariff data for 108 WTO member countries.

[36]See also Bown and Crowley (2013) who, using data on the time-varying protective measures (anti-dumping and safeguard actions) of the US over the period 1997-2006, find empirical support for predictions of the terms-of-trade theory when that theory is developed in a repeated-tariff-game setting subject to stochastic trade volume shocks and where self-enforcement constraints are binding.

[37]The GATT bargaining records for the first seven of the eight GATT rounds are available in PDF form at https://www.wto.org/english/docs_e/gattbilaterals_e/indexbyround_e.htm.

negotiations on a bilateral "request-offer" basis – each government requests tariff cuts from its bargaining partner in the bilateral and offers the tariff cuts that it is prepared to make in the bilateral if its requests are granted – and this was also true to varying degrees of the eighth (Uruguay) round and the currently suspended WTO (Doha) round.[38] Principal supplier status shapes the bargaining pairs that form in a round, and a double coincidence of wants must exist between any viable pair of bargaining partners: each country in the bargaining pair must be a principal supplier of at least one good to the other country in the pair, so that each has something of value to offer the other. In essence, GATT's reliance on the principal supplier rule has the effect of reducing the number of viable bilateral bargains in the round to a manageable level while at the same time allowing countries to focus on those bilaterals where the mutual stakes of the bargaining parties are likely to be highest. The object of negotiation is the tariff binding, the legal maximum level above which a country agrees not to raise its tariff. As Hoda (2001, pp. 44-45) explains, the protocols for the first five rounds were similar:

> Each round began with the adoption of a decision convening a tariff conference on a fixed future date. The decision required the contracting parties to exchange request lists and furnish the latest edition of their customs tariffs and their foreign trade statistics for a recent period well in advance of the first day of the conference and the offers had to be made on the first day. The negotiations were concluded generally over a period of six to seven months after the offers had been made...These negotiations were essentially bilateral between pairs of delegations.

Bagwell, Staiger and Yurukoglu (2020a) is the first paper to analyze the GATT bargaining records. They focus on the Torquay Round (1950-51) of GATT negotiations, identify a number of stylized facts from this round that emerge from an analysis of the bargaining data, and suggest that these stylized facts reflect a pragmatic approach to tariff bargaining that was induced by the pillars of the GATT architecture and the bargaining forum that these pillars helped to create. I begin this chapter by describing in broad terms how, through the lens of the terms-of-trade theory, the GATT pillars of reciprocity and MFN can be interpreted as

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[38]The sixth (Kennedy) and seventh (Tokyo) rounds of GATT negotiations took a linear-cut and formula-cut approach to tariff negotiations, respectively, but even in these rounds bilateral product-by-product negotiations played an important complementary role. As Hoda (2001, p. 47) notes, "... a linear or formula approach did not obviate the need for bilateral negotiations: they only gave the participants an additional tool to employ in the bargaining process."

simplifying the tariff bargaining problem, but at a potential cost, and thereby as facilitating a pragmatic approach to tariff bargaining. I then describe the findings of Bagwell, Staiger and Yurukoglu with regard to the bargaining records of the Torquay Round.

4.1. Theory

As I noted in chapter 2, MFN and reciprocity are two pillars of the GATT architecture. Do these pillars create a bargaining forum that is well-designed to address the terms-of-trade manipulation problem? To provide an answer to this question from the perspective of the terms-of-trade theory, I first return to the two-country model presented in chapter 2 and focus on the implications of GATT's reciprocity rules and norms in that setting. I then consider MFN in a multicountry extension of this model, and I describe how MFN and reciprocity work in tandem to shape the tariff bargaining forum within which GATT/WTO members negotiate. Throughout I keep technical details to a minimum, and refer interested readers to Bagwell, Staiger and Yurukoglu (2020a) for more detail and to Bagwell and Staiger (1999, 2002, 2005, 2010b, 2018a) where these theoretical findings were originally derived and presented.

Recall from chapter 2 that the GATT/WTO principle of reciprocity refers to the ideal of mutual changes in trade policy which bring about changes in the volume of each country's imports that are equal in magnitude to the changes in the volume of its exports. As I noted there, there are two instances in GATT where this principle is applied: governments seek reciprocity through a "balance of concessions" in their GATT Article XXVIII bis negotiations to liberalize tariffs; and when one government reverses its negotiated tariff liberalization, perhaps in a formal GATT Article XXVIII renegotiation but more generally whether it does so de facto or de jure, its trading partners are permitted to maintain reciprocity through retaliation by withdrawing "substantially equivalent concessions" of their own. Hence, the first instance of reciprocity applies when tariffs are moving in the downward direction, while the second instance applies when tariffs are moving in the upward direction. The first instance is a negotiating norm rather than a requirement that must be satisfied by negotiated tariff movements in the downward direction, but it is a norm that was strongly embedded in the culture of GATT (see, for example, Curzon, 1966, p. 74). The second instance is a rule that specifies the maximum permissible retaliatory response and therefore is a requirement that governs the movements of previously negotiated and bound

tariffs in the upward direction. In what follows I describe the implications that arise according to the terms-of-trade theory from a strict application of reciprocity in both directions.

I begin by defining reciprocity within the model of chapter 2, following Bagwell and Staiger (1999).[39] Consider a tariff negotiation that, starting from an initial pair of tariffs, (τ^0, τ^{*0}), results in a new pair of tariffs, (τ^1, τ^{*1}). Denoting the initial world and home-country local prices as $\widetilde{p}^{w0} \equiv \widetilde{p}^w(\tau^0, \tau^{*0})$ and $p^0 \equiv p(\tau^0, \widetilde{p}^{w0})$ and the new prices as $\widetilde{p}^{w1} \equiv \widetilde{p}^w(\tau^1, \tau^{*1})$ and $p^1 \equiv p(\tau^1, \widetilde{p}^{w1})$, I will say that the tariff changes conform to *the principle of reciprocity* when

$$\widetilde{p}^{w0}[M_x(p^1, \widetilde{p}^{w1}) - M_x(p^0, \widetilde{p}^{w0})] = [E_y(p^1, \widetilde{p}^{w1}) - E_y(p^0, \widetilde{p}^{w0})], \qquad (4.1)$$

where changes in trade volumes are valued at the existing world price. The key point is to notice that, by using the home-country balanced trade condition recorded in (2.1), the reciprocity condition in (4.1) may be rewritten as

$$[\widetilde{p}^{w1} - \widetilde{p}^{w0}]M_x(p^1, \widetilde{p}^{w1}) = 0, \qquad (4.2)$$

which implies $\widetilde{p}^{w1} = \widetilde{p}^{w0}$ provided only that $M_x(p^1, \widetilde{p}^{w1}) > 0$. A completely analogous definition of reciprocity holds from the perspective of the foreign country, with an analogous implication. According to (4.2), reciprocity can therefore be given a simple characterization in the two-country two-good model of chapter 2: mutual changes in trade policy conform to the principle of reciprocity if and only if they leave $\widetilde{p}^w$ – the terms of trade between the home and foreign country – unchanged.[40] With this characterization in hand, I next consider how strict adherence to reciprocity simplifies the tariff bargaining problem in this two-country setting.

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[39]The concept of reciprocity has a long history in many literatures but, when used, has not always been unambiguously defined, and as Keohane (1986) notes this has often led to confusion. The definition of reciprocity that I adopt here, which follows Bagwell and Staiger (1999), formalizes the notion of "substantially equivalent concessions" that is at the heart of the GATT/WTO concept of reciprocity.

[40]Bagwell and Staiger (1999, note 16) extends this result to a many-good version of the model of chapter 2, while Bagwell and Staiger (2016, Online Appendix) provides a generalization of a number of additional features of reciprocity to the many-good general-equilibrium setting. These properties of reciprocity are also shown to hold in a two-sector partial equilibrium setting where the non-numeraire sector is a monopolistically competitive industry with many varieties (see Bagwell and Staiger, 2015), and in a three-good partial equilibrium setting where each of the two non-numeraire goods is a competitive homogeneous-good industry (see Bagwell and Staiger, 2001a). Notice too that, by fixing relative exporter prices (the terms of trade), reciprocity also ensures that any changes in the tariff revenue collected by one country from the exporters of its trading partner must be matched by changes in the tariff revenue that its trading partner

Consider first the implication when governments adhere strictly to reciprocity in the downward direction. With reciprocity fixing the *balance* of market access concessions to be exchanged at one-for-one and therefore fixing the terms of trade at $\widetilde{p}^{w0}$ according to (4.2), the two governments are only bargaining over the *depth* of the reciprocal tariff cuts to which they will agree. The depth of these cuts determines the home tariff τ^1, and hence the home local price according to $p(\tau^1, \widetilde{p}^{w0})$ and its import volume according to $M_x(p(\tau^1, \widetilde{p}^{w0}), \widetilde{p}^{w0})$; and it determines the foreign tariff τ^{*1}, and hence the foreign local price according to $p^*(\tau^{*1}, \widetilde{p}^{w0})$ and its import volume according to $M_y^*(p^*(\tau^{*1}, \widetilde{p}^{w0}), \widetilde{p}^{w0})$. This means that the preferred depth of the reciprocal tariff cuts for the home government would deliver the home tariff level $\hat{\tau}^1$ defined by $W_p(p(\hat{\tau}^1, \widetilde{p}^{w0}), \widetilde{p}^{w0}) = 0$, and the home government would propose to the foreign government that the foreign government reciprocate with the tariff $\tau^{*R}(\hat{\tau}^1)$ defined by $\widetilde{p}^w(\hat{\tau}^1, \tau^*) = \widetilde{p}^{w0}$ that leaves $\widetilde{p}^w$ unchanged. And likewise, the preferred depth of the reciprocal tariff cuts for the foreign government would deliver the foreign tariff level $\hat{\tau}^{*1}$ defined by $W_{p^*}^*(p^*(\hat{\tau}^{*1}, \widetilde{p}^{w0}), \widetilde{p}^{w0}) = 0$, and the foreign government would propose to the home government that the home government reciprocate with the tariff $\tau^R(\hat{\tau}^{*1})$ defined by $\widetilde{p}^w(\tau, \hat{\tau}^{*1}) = \widetilde{p}^{w0}$ that leaves $\widetilde{p}^w$ unchanged.

If the two governments *agree* on the preferred depth of reciprocal tariff cuts in the sense that $\hat{\tau}^1 = \tau^R(\hat{\tau}^{*1})$ and $\hat{\tau}^{*1} = \tau^{*R}(\hat{\tau}^1)$, then their preferred proposals will agree, and there will be no haggling: by holding themselves strictly to the GATT norm of reciprocity in the downward direction and thereby eliminating strategic considerations over the implications of their agreed tariffs for the terms of trade, governments succeed in eliminating strategic considerations *completely* from their tariff bargaining. And in this case, the agreed tariffs satisfy $W_p(p(\hat{\tau}^1, \widetilde{p}^{w0}), \widetilde{p}^{w0}) = 0$ and $W_{p^*}^*(p^*(\hat{\tau}^{*1}, \widetilde{p}^{w0}), \widetilde{p}^{w0}) = 0$, implying that governments implement the political optimum point on the efficiency frontier.

On the other hand, if the two governments *disagree* over the preferred depth of reciprocal tariff cuts in the sense that $\hat{\tau}^1 \neq \tau^R(\hat{\tau}^{*1})$ and $\hat{\tau}^{*1} \neq \tau^{*R}(\hat{\tau}^1)$, with one government wanting deeper reciprocal tariff cuts than the other government, then their preferred proposals will disagree. It is in this case that the application of reciprocity in the upward direction becomes important: in effect, due to this second application of reciprocity, strategic considerations will still be absent from the negotiations and there will still be no haggling; and the government wanting

collects from its exporters (see Bagwell and Staiger, 1999, note 16); this confirms the equivalence between reciprocity and the matching of changes in tariff revenue collected by each country from the exporters of its trading partner that I asserted in the introductory discussion of chapter 1.

the *less* ambitious agreement will get its way. This is because if this government were pushed in the negotiations to liberalize its tariff below the level that it prefers, it could always – subsequent to the negotiations – unilaterally raise its tariff back up to this level, and the most that the other government would be allowed to do under this second application of reciprocity is to retaliate with a tariff hike of its own that keeps the terms of trade at the level $\widetilde{p}^{w0}$, thereby allowing the first government to achieve its preferred tariff after all; and knowing this, the two governments are aware when they make their initial tariff proposals that the government wanting the less ambitious agreement will ultimately get its way.[41]

In a tariff bargaining model meant to capture the two applications of reciprocity in GATT, Bagwell and Staiger (1999) capture this implication of reciprocity in the upward direction in a short-hand way, by assuming that when the two governments make tariff proposals that disagree, the proposal with the highest tariff pair and implying the lowest trade volume is ultimately implemented. They show that, even in the case where the two governments disagree over the preferred depth of reciprocal tariff cuts, it will still be the case that *all* strategic considerations in tariff bargaining are eliminated if the governments abide by strict reciprocity in the two instances where reciprocity arises in GATT. Intuitively, reciprocity in the downward direction fixes the "price" at which market access is to be exchanged between the two governments; and reciprocity in the upward direction then amounts to an assurance of "voluntary exchange" whereby no government can be forced as a result of the negotiations to accept more trade volume than it desires at this price, determining the depth of the tariff cuts to which the two governments will agree.[42] At this point, there is no room left in the negotiations for strategic behavior.

More formally, as Bagwell and Staiger (1999) demonstrate in their model of tariff bargaining, in the two-country model presented in chapter 2 it is a dominant strategy for the home government to propose the tariff pair $(\hat{\tau}^1, \tau^{*R}(\hat{\tau}^1))$ and for the foreign government to propose the tariff pair $(\hat{\tau}^{*1}, \tau^R(\hat{\tau}^{*1}))$, and the implemented tariff pair is then determined by the least ambitious tariff proposal

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[41] This point is related to Tasca's (1938, p. 146) discussion, from which I quote in chapter 2, of the importance of various "withdrawal clauses" in the RTAA.

[42] The "voluntary exchange" aspect induced by reciprocity in the upward direction and its impact on the bargaining outcome as modeled in Bagwell and Staiger (1999) echoes the logic of reciprocity described by Dam (1970, pp. 80-81) in the passage I quoted from in chapter 2, that governments understood that "[t]he best guarantee that a commitment of any kind will be kept ... is that the parties continue to view adherence to their agreement as in their mutual interest ... ."

(i.e., the proposal that implies the smallest amount of reciprocal liberalization). Notice that, unless the proposals happen to agree and the political optimum is implemented, only one of the two governments will achieve its preferred tariff and hence preferred local price and import volume, and it is easily checked that in this case the condition for efficiency in (2.15) will be violated at the agreed tariffs.

Therefore, according to the terms-of-trade theory of trade agreements, as a general matter strict adherence to GATT's reciprocity rules will introduce a trade-off. On the one hand, strict adherence to these rules can eliminate strategic considerations from bargaining, and can in this way help governments avoid the attendant bargaining costs (e.g., in the form of bargaining delay) that they might otherwise incur. On the other hand, the constraints that reciprocity imposes on the possible tariff bargaining outcomes may prevent the two governments from ever reaching the efficiency frontier.

If we think of the initial tariff pair from which negotiations begin as corresponding to the Nash tariffs defined by the joint solution to (2.10) and (2.11), then this trade-off becomes less favorable the greater are the asymmetries in market power that are wielded by the two governments. This is because such asymmetries translate into an initial terms of trade, $\widehat{p}^{w0} \equiv \widehat{p}^w(\tau^N, \tau^{*N})$, which is then further away from the terms of trade $\widehat{p}^w(\tau^{PO}, \tau^{*PO})$ necessary to implement a point on the efficiency frontier in this bargaining game (i.e., the political optimum). It is only in the special case where the distribution of market power wielded by governments happens to be symmetric across countries so that $\widehat{p}^{w0} \equiv \widehat{p}^w(\tau^N, \tau^{*N}) = \widehat{p}^w(\tau^{PO}, \tau^{*PO})$ that the efficiency frontier is reached under strict adherence to GATT's reciprocity rules and the trade-off vanishes. Viewed through the lens of the terms-of-trade theory, the applications of reciprocity found in the GATT/WTO can thus be seen as facilitating a pragmatic approach to tariff bargaining in an environment where bargaining frictions might otherwise be substantial, and one that is most likely to lead to good tariff bargaining outcomes when the world does not exhibit large asymmetries along the relevant dimensions.

It is interesting to note that the absence of strategic bargaining behavior is seen by GATT practitioners and legal scholars as a hallmark of the tariff bargaining that occurred in the early GATT rounds and as distinguishing GATT tariff bargaining from the tariff bargaining that preceded it. Describing the bargaining techniques in use during the first five GATT rounds of request-offer tariff negotiations, Curzon (1966, p. 74) emphasizes the role of reciprocity in dictating the balance that each country struck between its requests for and offers of market access, and the lack of strategic behavior that this balance induced:

> ...Their requests cannot be higher than their offers and negotiations
> start from this maximum position: if all requests are granted all the offers
> will be fulfilled. Similarly all other contracting parties are likely to make
> offers which match the requests they have made. As some of the requests are
> rejected, some of the offers are withdrawn. This procedure has been raised
> to a Gatt principle and is not laid down by any rule. It is a convention but
> one which creates a much better negotiating climate than the opposite trend
> which was a feature of the classical bilateral negotiations. Then, everyone
> put forward very low offers with the intention of increasing gradually if the
> bargaining proved profitable. A country never knew, however, when it had
> reached the maximum its partner was willing to concede.

Curzon further clarifies this feature in his accompanying description of the be-
havior of several GATT newcomers that tried unsuccessfully to pursue classical
bargaining strategies:

> Several newcomers to GATT unaware of this new technique and starting
> with low offers found that in the course of negotiations they were unable
> to reach the level of requests they aimed for. Their initially low offers were
> taken as proof of their intentions and they either had to go home with a
> tariff higher than expected or had to increase their offers in the course of
> the negotiations. (Curzon, 1966, p. 74)

Here Curzon is describing a tariff bargaining forum in which there is no point
in making lowball initial offers, because governments are expecting non-strategic
behavior from their bargaining partners and such offers would simply be taken at
face value.

I next consider the role played by MFN in a multicountry extension of the
two-country model, and I describe how MFN and reciprocity can in principle
work together to simplify the multilateral tariff bargaining problem. To this end
I consider an extension of the model to three countries, where the home country
now exports good y to two foreign countries, '$*1$' and '$*2$,' and imports good x
from each of them (the two foreign countries do not trade with each other). Each
foreign country can impose a tariff τ^{*i} for $i \in \{1, 2\}$ on its imports of good y from
the home country, and the home country can set tariffs on its imports of good x
from the two foreign countries.

If the home country were to apply the *discriminatory* tariffs τ^1 to imports
from foreign-country 1 and $\tau^2 \neq \tau^1$ to imports from foreign-country 2, then sep-
arate world prices would apply to its trade with each partner, p^{w1} for its trade

with foreign-country 1 and p^{w2} for its trade with foreign-country 2. This follows because there must be a single local price p in the home economy, and the pricing relationships $p = (1+\tau^1)p^{w1}$ and $p = (1+\tau^2)p^{w2}$ then imply $p^{w1} \neq p^{w2}$ whenever $\tau^1 \neq \tau^2$.

The MFN rule imposes the non-discrimination requirement $\tau^1 = \tau^2 \equiv \tau$. A first and immediate implication of the MFN rule can now be appreciated: under MFN, a single equilibrium world price, $\widetilde{p}^w(\tau, \tau^{*1}, \tau^{*2})$, must prevail, as I noted in previous chapters. This is important, because it means that when the MFN rule applies the representation of government preferences introduced in the two-country model of chapter 2 extends without qualification to the three-country setting, with these government preferences given by $W(p, \widetilde{p}^w)$, $W^{*1}(p^{*1}, \widetilde{p}^w)$ and $W^{*2}(p^{*2}, \widetilde{p}^w)$, where $p = (1+\tau)p^w \equiv p(\tau, p^w)$ and $p^{*i} = p^w/(1+\tau^{*i}) \equiv p^{*i}(\tau^{*i}, p^w)$, $i = \{1, 2\}$, and where in line with the two-country model I assume that the function $\widetilde{p}^w$ as defined here is decreasing in τ and increasing in τ^{*1} and τ^{*2}. And with government preferences of this form, it is straightforward to show that the political optimum defined by the three tariffs that satisfy the three conditions $W_p(p, \widetilde{p}^w) = 0$, $W_{p^{*1}}^{*1}(p^{*1}, \widetilde{p}^w) = 0$ and $W_{p^{*2}}^{*2}(p^{*2}, \widetilde{p}^w) = 0$ continues to be efficient.

Evidently, in a multilateral world the MFN principle ensures that the international externality at the root of the problem to be solved by a trade agreement is still the same terms-of-trade externality driven by movements in $\widetilde{p}^w$ that arises in the simpler two-country setting. Notice, though, that according to the equilibrium world price function $\widetilde{p}^w(\tau, \tau^{*1}, \tau^{*2})$ each country's welfare will be impacted by the tariff choices of the remaining two countries if these tariff choices impact the world price. This implies in turn that in a multilateral world, bilateral MFN tariff bargains will in general impose terms-of-trade externalities on third countries, indicating a potentially important multilateral dimension associated with such bargains that further complicates the bargaining problem.[43] This is where reciprocity, now in combination with MFN, can again simplify things.

To see the simplification that is afforded when MFN is combined with reciprocity in this setting, consider a tariff bargain between the home country and foreign-country 1, and suppose for the moment that foreign-country 2 refuses to join the negotiations and keeps its tariff held fixed at the level τ_0^{*2}. How will foreign-country 2 be impacted by the bilateral tariff bargain between the home country and foreign-country 1? When the home country lowers its MFN tariff

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[43]In the absence of MFN, there would also be multilateral dimensions associated with any bilateral (discriminatory) tariff bargain, but the nature of the spillovers would be different (see Bagwell and Staiger, 2005, and Bagwell, Staiger and Yurukoglu, forthcoming).

τ on imports of x, $\widetilde{p}^w(\tau, \tau^{*1}, \tau_0^{*2})$ rises and foreign-country 2 therefore enjoys a terms-of-trade improvement, because foreign-country 2's exporters enjoy a higher price for their exports of x into the home-country market, and because foreign-country 2 also pays a lower price for imports of y from the home country owing to the stimulus to home-country export supply of y that is created by the home-country's tariff cut. On the other hand, when foreign-country 1 lowers its tariff τ^{*1} on imports of y, $\widetilde{p}^w(\tau, \tau^{*1}, \tau_0^{*2})$ falls and foreign-country 2 therefore suffers a terms-of-trade decline, because foreign-country 2's exporters receive a lower price for their exports of x into the home-country market owing to the increased competition that they face from the stimulated export supply of x coming from foreign-country 1 as a result of foreign-country 1's tariff cut, and because foreign-country 2 also pays a higher price for imports of y from the home country owing to foreign-country 1's increased demand for imports of y from the home country as a result of foreign-country 1's tariff cut.

Hence, when the home country and foreign-country 1 *both* lower their tariffs as part of a bilateral tariff negotiation, the sign of the impact on $\widetilde{p}^w(\tau, \tau^{*1}, \tau_0^{*2})$ and therefore on foreign-country 2 is in general *ambiguous*, and depends on the relative size of the home and foreign-country-1 tariff cuts. And it is straightforward to show that the cuts in τ and τ^{*1} that exactly balance these opposing forces and leave $\widetilde{p}^w(\tau, \tau^{*1}, \tau_0^{*2})$ unchanged are precisely the tariff cuts that conform to reciprocity as I have defined reciprocity in (4.1) above. But now recall that foreign-country 2 has by assumption kept its tariff held fixed at the level τ_0^{*2}. So if $\widetilde{p}^w(\tau, \tau^{*1}, \tau_0^{*2})$ is held fixed by the reciprocal tariff cuts that the home country and foreign-country 1 negotiate, it follows that $p^{*2}(\tau_0^{*2}, \widetilde{p}^w(\tau, \tau^{*1}, \tau_0^{*2}))$ is then also held fixed, and therefore neither the trade volumes of foreign-country 2, $M_y^{*2}(p^{*2}(\tau_0^{*2}, \widetilde{p}^w), \widetilde{p}^w)$ and $E_x^{*2}(p^{*2}(\tau_0^{*2}, \widetilde{p}^w), \widetilde{p}^w)$, nor its welfare $W^{*2}(p^{*2}(\tau_0^{*2}, \widetilde{p}^w), \widetilde{p}^w)$, will be impacted by the bilateral tariff negotiation between the home country and foreign-country 1: there will be no third-party spillovers to foreign-country 2 from the bargain. Evidently, under the GATT pillars of MFN and reciprocity, if foreign-country 2 refuses to bargain it will get nothing; and the bargain between the home country and foreign-country 1 can proceed without strategic considerations, exactly as in the two-country setting discussed above.[44]

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[44]These and related points are developed in Bagwell and Staiger (2005, 2010b). I have described this result in a simple 2-good model. See Bagwell and Staiger (2002, Appendix B) for a discussion of this result in the many-good setting. See also Ossa (2014) and the discussion of Ossa in Bagwell and Staiger (2016, p 512-513) for a qualification to this result that arises in a monopolistic competition setting. The modeling framework considered by Ludema and

Now suppose that foreign-country 2 decides to join the negotiations. In this case it is easy to see how the home country could engage in a *sequence* of bilateral bargains, first with foreign-country 1, and then with foreign-country 2, where each bargain abides by MFN and reciprocity and where there are then no strategic considerations and no third-party spillovers associated with either bilateral. If the home-country negotiations with foreign-country 1 do not exhaust the home-country's desire for reciprocal tariff cuts, it could then continue to engage in further reciprocal tariff liberalization with foreign-country 2.

The process I have just described looks much like the "split concessions" technique for preserving bargaining power as described by Beckett (1941, p. 23) in the context of the RTAA and discussed in chapter 2, whereby "a small reduction in duty is made in the agreement with the first country and an additional reduction in the agreement with the second country," all the while achieving reciprocity in each bilateral and maintaining MFN.[45] But a key difference between the RTAA and GATT is that in a GATT round these bilateral negotiations occur *simultaneously* rather than sequentially. It was thought that this would speed up the bilateral negotiating process in GATT relative to the RTAA, and that it would allow the properties of MFN and bilateral reciprocity described just above to be extended to *multilateral* reciprocity, relaxing the need for strict bilateral balance between concessions granted and concessions obtained and allowing countries to focus instead on achieving the desired balance on a multilateral basis. As one early GATT report put it (see also Curzon, 1966, pp. 75-77):

Mayda (2013) that I discussed in chapter 3 does not allow for the possibility that tariff cuts in a bilateral could be balanced in such a way as to reduce or eliminate movements in world prices and thereby reduce or eliminate third-party spillovers, because that framework is partial equilibrium (and abstracts from export taxes; see Bagwell and Staiger, 2001a for an analysis of reciprocity that establishes that its key properties are preserved in a partial equilibrium setting where both import taxes and export taxes are available). Still, the main prediction that Ludema and Mayda take to the data – that where exporters of a good g into country c are less concentrated, free-riding in GATT/WTO tariff negotiations will be more of a problem and the negotiated level of τ_{gc} will continue to bear more of the imprint of country c's market power than in the case where exporters are highly concentrated – could also arise here if governments mistakenly *believed* that they could free ride on the MFN tariff bargains of others and chose not to partake in the negotiations even while the strict adherence to reciprocity and MFN ended up frustrated their belief in this regard. If that were the case, the reduced participation of exporters negotiating over that tariff would imply less liberalization of that tariff.

[45]Bagwell and Staiger (2010b) investigate the properties of sequential tariff liberalization under MFN and reciprocity, and relate their results to the entry of new and economically significant countries into the world trading system. I will return to this paper in chapter 5, when I discuss the "latecomers problem" that the WTO's Doha Round may be grappling with.

Multilateral tariff bargaining, as devised at the London Session of the Preparatory Committee in October 1946 and as worked out in practice at Geneva and Annecy, is one of the most remarkable developments in economic relations between nations that has occurred in our time. It has produced a technique whereby governments, in determining the concessions they are prepared to offer, are able to take into account the indirect benefits they may expect to gain as a result of simultaneous negotiations between other countries, and whereby world tariffs may be scaled down within a remarkably short time. ... The multilateral character of the Agreement enabled the negotiators to offer more extensive concessions than they might have been prepared to grant if the concessions were to be incorporated in separate bilateral agreements. Before the Geneva negotiations a country would have aimed at striking a balance between the concessions granted to another country and the direct concessions obtained from it without taking into account indirect benefits which might accrue from other prospective trade agreements; it might even have been unwilling to grant an important concession if it had been obliged to extend that concession to third countries without compensation. (ICITO, 1949, p. 10)

In effect, the claim made in the ICITO report is that GATT rounds made it possible for governments to exchange in a balanced way the spillovers across bilaterals that might arise from a lack of bilateral reciprocity, and thereby still achieve overall, multilateral, reciprocity; and that this feature enhanced the possibilities for a more extensive agreement.

To see how the implications of MFN and bilateral reciprocity described above extend also to multilateral reciprocity, it is helpful to consider a four-country setting, where the home country now trades with three foreign countries indexed by $i \in \{1, 2, 3\}$, and where the equilibrium world price function is now given by $\widetilde{p}^w(\tau, \tau^{*1}, \tau^{*2}, \tau^{*3})$ with $\widetilde{p}^w$ decreasing in τ and increasing in τ^{*1}, τ^{*2} and τ^{*3}. To fix ideas, suppose that foreign-country 3 refuses to join the negotiations and keeps its tariff held fixed at the level τ_0^{*3}. And suppose that the home country negotiates bilaterally and also now simultaneously with foreign countries 1 and 2 in a negotiating "round." And finally suppose for simplicity that the home country's desire for reciprocal tariff cuts is at least as great as the sum of the desire for such tariff cuts from foreign countries 1 and 2.

Consider first the possibility that the bilateral MFN negotiations proceed along the lines of bilateral reciprocity described above. In its bilateral with foreign-country 1, the home country could offer to cut its MFN tariff τ in exchange for

a reciprocal tariff cut from foreign-country 1 to the level that foreign-country 1 prefers, $\hat{\tau}^{*1}$, implying the home tariff level $\tilde{\tau} = \tau^R(\hat{\tau}^{*1}, \tau_0^{*2}, \tau_0^{*3})$ defined by

$$\widetilde{p}^w(\tilde{\tau}, \hat{\tau}^{*1}, \tau_0^{*2}, \tau_0^{*3}) = \widetilde{p}_0^w$$

and therefore implying the exchange of reciprocal tariff cuts $\Delta\tau = \tilde{\tau} - \tau_0$ and $\Delta\tau^{*1} = \hat{\tau}^{*1} - \tau_0^{*1}$ in this bilateral. And the home country could engage in further reciprocal tariff cuts with foreign-country 2, offering a further tariff cut in exchange for a reciprocal tariff cut from foreign-country 2 to the level that foreign-country 2 prefers, $\hat{\tau}^{*2}$, implying the home tariff level $\bar{\tau} = \tau^R(\hat{\tau}^{*1}, \hat{\tau}^{*2}, \tau_0^{*3})$ defined by

$$\widetilde{p}^w(\bar{\tau}, \hat{\tau}^{*1}, \hat{\tau}^{*2}, \tau_0^{*3}) = \widetilde{p}_0^w \tag{4.3}$$

and the exchange of reciprocal tariff cuts $\Delta\tau = \bar{\tau} - \tilde{\tau}$ and $\Delta\tau^{*2} = \hat{\tau}^{*2} - \tau_0^{*2}$ in this bilateral. Under this first possibility, the home country negotiates two tariff bindings, one with foreign-country 1 and a second, lower one, with foreign-country 2; and when these two bilaterals occur simultaneously, it is the lower binding which summarizes the implications of the round for the "applied" home-country tariff that enters the world price function in (4.3).

With these agreed tariff changes satisfying reciprocity in each bilateral, the overall changes in tariffs negotiated in the round as a result of the two bilaterals will of course by construction satisfy reciprocity as well, and will therefore leave the terms of trade unaltered, as is reflected in (4.3). Hence, as I described above in the context of the three-country model, in the four-country setting it is also true that when each of the bilateral MFN negotiations adheres to reciprocity, there are no strategic considerations and no third-party spillovers from the bilaterals, and in this case the non-participating foreign-country 3 receives nothing.

But now consider an alternative possibility for the outcomes of each of the bilaterals. Suppose in its bilateral with foreign-country 1 the home country offers the tariff cut $\Delta\tau = \bar{\tau} - \tau_0$ in exchange for the tariff cut $\Delta\tau^{*1} = \hat{\tau}^{*1} - \tau_0^{*1}$ from foreign-country 1; and suppose in its bilateral with foreign-country 2 the home country demands the tariff cut $\Delta\tau^{*2} = \hat{\tau}^{*2} - \tau_0^{*2}$ while offering nothing in return. Now reciprocity is violated in each bilateral, with the home country granting greater-than-reciprocal tariff cuts in its bilateral with foreign-country 1 and receiving greater-than-reciprocal tariff cuts in its bilateral with foreign-country 2. And as a result, viewed in isolation each bilateral would alter the terms of trade $\widetilde{p}^w$, with foreign-country 3 enjoying a terms-of-trade improvement as a result of the tariff cuts exchanged in home's bilateral with foreign-country 1 and suffering

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a terms-of-trade deterioration as a result of the tariff cuts exchanged in home's bilateral with foreign-country 2. Nevertheless, this alternative possibility still delivers the same overall outcome of the negotiating round, as embodied in the tariffs $\bar{\tau}$, $\hat{\tau}^{*1}$ and $\hat{\tau}^{*2}$, with τ^{*3} held fixed at τ_0^{*3}. And so, as (4.3) indicates, once the outcomes of the bilaterals are viewed in their totality, it is clear that the various violations of bilateral reciprocity that I have just described offset each other, so that *multilateral reciprocity* is still maintained, the terms of trade is still preserved, and strategic considerations and third-party spillovers are still eliminated.

It is in this general way, as the quoted passage from the ICITO report above suggests, that the innovation introduced by GATT rounds of simultaneous bilateral MFN tariff bargains over the earlier sequential bilateral MFN tariff bargains of the RTAA may have relaxed the constraint of bilateral reciprocity and allowed governments – by "exchanging" spillovers across bilaterals in a balanced way – to continue to enjoy the benefits of MFN and reciprocity under the less stringent requirement of multilateral reciprocity.[46]

Bagwell and Staiger (2018) provide the dominant-strategy arguments that formalize these insights in the context of the three-country model described above. In the tariff bargaining game that they consider, the three countries take as given the initial tariff vector and the accompanying world price, and then make simultaneous tariff proposals. Mimicking the request-offer structure of GATT tariff negotiations, a strategy for each country is a proposal for its own tariff and that of its trading partner(s), where a proposal must satisfy MFN and multilateral reciprocity. Each country's proposal, if accepted, would imply an import volume for itself. Bagwell and Staiger then construct a simple mechanism that takes the proposals made by the three countries and assigns a vector of tariffs. If the proposals agree, the tariff vector comprised of each country's own-tariff proposal is assigned. If the proposals do not agree, the mechanism assigns a vector of tariffs that maximizes the trade volume subject to maintaining the initial world price (reciprocity in the downward direction) and subject to a "voluntary exchange" constraint under which no country is forced to import a volume in excess of its implied import volume (reciprocity in the upward direction). When the proposals do not agree, with one side wanting deeper reciprocal tariff cuts than the other, a "rebalancing" of offers is required, because the depth of the offer(s) on the "long"

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[46]What is not answered here is what exactly the countries gain from the relaxation of the bilateral reciprocity constraint to a multilateral reciprocity constraint. But it is not hard to imagine trading patterns (e.g., such as featured in the triangular trade model of Maggi, 1999), where the relaxation of this constraint would make a difference to the bargaining outcomes.

side of the market must be reduced to match the depth on the "short" side. For the constructed mechanism, Bagwell and Staiger show that if countries use dominant strategies, each country's proposal must specify a tariff for itself that delivers its preferred local price and trade volume, given the initial world price; and under dominant-strategy proposals, the implemented tariff vector is efficient if and only if the initial world price corresponds to the world price that would also prevail at the politically optimal tariffs, just as I described above in the context of reciprocity in the two-country setting.

The upshot is that, when negotiations must satisfy MFN and multilateral reciprocity, a strategically complex multilateral bargaining problem is converted into a comparatively straightforward collection of bilateral bargains, because under MFN and multilateral reciprocity it is a dominant strategy for each participating government to propose for a given import product the tariff that generates its preferred local price and trade volume for the fixed terms of trade. Hence, when governments adhere strictly to MFN and multilateral reciprocity in their GATT tariff bargains, there should be an absence of strategic behavior among the participating governments. A further implication of Bagwell and Staiger's (2018a) analysis is that, under MFN and multilateral reciprocity, a government anticipates that any subsequent rebalancing of offers necessary for multilateral reciprocity would arise later in the round after all offers had been recorded and that this might lead to a reduction in the depth of its overall (multilateral) offer. This implies that there will be an important multilateral element to the bilateral bargains. And finally, at a more specific level these features imply that, when tariff bargaining takes place under the constraints of MFN and multilateral reciprocity, offers play a central role and are not often modified, lowball initial offers are absent, and linkages across bilaterals are present.[47] This summarizes the bargaining behavior that would be expected in a tariff bargaining forum shaped by the requirements of MFN and multilateral reciprocity when viewed through the lens of the terms-of-trade theory.

4.2. Torquay Round bargaining records

With the theoretical considerations developed above as a guide, I now describe the findings of Bagwell, Staiger and Yurukoglu (2020a) with regard to the bargaining

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[47]Outcomes consistent with either zero or one modifications to the initial offer can arise under the mechanism characterized by Bagwell and Staiger (2018). If shocks (e.g., a given bilateral randomly fails) were introduced, additional offer modifications could naturally arise.

records of the Torquay Round, which cover negotiations that spanned a 10 month period over $1950-51$. There were 37 negotiating parties at Torquay, representing 39 countries and accounting for well over 80 percent of world trade as of 1949.[48] Of the 666 possible bargaining pairs, 298 formed, reflecting the bargaining structure implied by the principal supplier rule: Bagwell, Staiger and Yurukoglu report that on average 1.25 exporting countries bargained with an importing country over a given tariff, with the requirement of a double coincidence of wants then determining the list of viable bilaterals. The GATT Torquay bargaining records cover 292 of the 298 bilaterals that were formed, 148 of which were successfully completed and led to agreed tariff commitments on thousands of tariff-line products. The United States engaged in bilateral negotiations with 24 of its 36 potential negotiating partners, and reached final agreement with 15 of them.

Bagwell, Staiger and Yurukoglu document three stylized facts of the tariff bargaining at Torquay that conform broadly to the predictions of the terms-of-trade theory outlined above. First, initial offers were not often modified in the negotiations. On products where a country made at least 1 offer in the bilateral, it made an average of 1.36 offers in a bilateral on that product; and on products where a country made at least 1 request in the bilateral, modification was even more rare, with an average of 1.02 requests in a bilateral on that product. Moreover, offers played a central role in the bargaining, in that when proposals were modified, it was the offers, not the requests, that were adjusted: when a counterproposal was made in a bilateral, 82 percent of the time it involved a modification of an own-tariff-cut offer, not a modification of the request for a tariff cut from the bargaining partner. In this sense, it appears that offers were taken at face value – if my bargaining partner's initial offer did not meet my initial request, I reduced the depth of my offer to match the depth of my partner's offer rather than requesting that my partner increase her offer to match my initial request – much as Curzon (1966, p. 74) suggests in the passage quoted above and much as the terms-of-trade theory predicts.

Second, there was a notable absence of initial lowball offers, with the initial offers cutting tariffs on average to 82.2 percent of their existing levels and with the final offers cutting tariffs to 80.9 percent of their existing levels, corresponding to an average downward movement in offers made within a bilateral over the 10 months of negotiations that amounted to less than 2 percent (not 2 percentage points) of the initial offers. Moreover, even this amount of downward movement

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[48]Belgium, Luxembourg, and the Netherlands belonged to the Benelux customs union which negotiated its common external tariffs as a single entity.

hides an interesting fact: as Curzon (1966, p. 74) observed in the passage quoted above, the lack of lowball initial offers was particularly striking for countries that had previous negotiating experience in earlier GATT rounds. This is documented in Tables 4.1 and 4.2.

Table 4.1, which is reproduced from Table A3 of the Online Appendix to Bagwell, Staiger and Yurukoglu (2020a), reports negotiating statistics for the subset of countries at Torquay that had also been present at the previous GATT (Annecy) round. Table 4.2, reproduced from Table A2 of the same Online Appendix, reports the same statistics for the six countries (Austria, Germany, Korea, Peru, Philippines and Turkey) that were negotiating their accession to GATT during the Torquay Round, and hence were GATT newcomers.

		Sales			Purchases		
		Ad Val	Specific	All	Ad Val	Specific	All
		Country-Specific					
	Mean	0.543	0.577	0.554	0.512	0.582	0.539
Initial request	SD	0.235	0.306	0.260	0.257	0.321	0.286
over existing	Min	0	0	0	0	0	0
tariff	Max	1	1	1	1	1	1
	N	17681	7971	25652	15621	9911	25532
	Mean	0.804	0.817	0.808	0.796	0.845	0.817
Initial offer over	SD	0.195	0.233	0.208	0.213	0.218	0.216
existing tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	8387	3577	11964	6578	5008	11586
	Mean	0.797	0.827	0.806	0.773	0.831	0.802
Final agreed	SD	0.200	0.235	0.212	0.211	0.240	0.228
concession over	Min	0	0	0	0	0	0
existing tariff	Max	1	1	1	1	1	1
	N	5603	2394	7997	3384	3341	6725
		Cross-Country					
	Mean	0.543	0.576	0.554			
Initial request	SD	0.237	0.308	0.264			
over existing	Min	0	0	0			
tariff	Max	1	1	1			
	N	14139	7172	21311			
	Mean	0.810	0.825	0.815			
Initial offer over	SD	0.197	0.233	0.209			
existing tariff	Min	0	0	0			
	Max	1	1	1			
	N	6845	3226	10071			
	Mean	0.801	0.816	0.806			
Final offer over	SD	0.202	0.241	0.216			
existing tariff	Min	0	0	0			
	Max	1	1	1			
	N	6813	3217	10030			

Table A3: Initial requests, initial offers and final offers and concessions over existing tariffs for all non-acceding countries (existing GATT members) in the Torquay Round. "Sales" refer to requests of and offers on own tariffs. "Purchases" refer to requests of and offers on the tariffs of the bargaining partner. Country-Specific numbers refer to a given Seller-Purchaser-HS6, and describe the evolution of tariff concessions from initial requests to finalized agreed concession. Some goods appear in both the ad valorem and specific columns. Cross-Country numbers refer to a given Seller-HS6, and describe the evolution of tariff concessions from initial requests to the last offer made.

Table 4.1 (Reproduced from Table A3 of the Online Appendix to Bagwell, Staiger and Yurukoglu, 2020a)

		Sales			Purchases		
		Ad Val	Specific	All	Ad Val	Specific	All
		Country-Specific					
Initial request over existing tariff	Mean	0.471	0.611	0.544	0.571	0.617	0.585
	SD	0.294	0.327	0.319	0.223	0.290	0.246
	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	4306	4696	9002	6366	2756	9122
Initial offer over existing tariff	Mean	0.827	0.870	0.855	0.829	0.840	0.833
	SD	0.229	0.203	0.213	0.179	0.225	0.197
	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	1798	3445	5243	3607	2014	5621
Final agreed concession over existing tariff	Mean	0.725	0.846	0.819	0.807	0.849	0.820
	SD	0.179	0.241	0.234	0.183	0.232	0.201
	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	668	2271	2939	2887	1324	4211
		Cross-Country					
Initial request over existing tariff	Mean	0.476	0.625	0.559			
	SD	0.301	0.332	0.327			
	Min	0	0	0			
	Max	1	1	1			
	N	2904	3703	6607			
Initial offer over existing tariff	Mean	0.836	0.876	0.862			
	SD	0.233	0.199	0.212			
	Min	0	0	0			
	Max	1	1	1			
	N	1491	2807	4298			
Final offer over existing tariff	Mean	0.791	0.844	0.829			
	SD	0.239	0.237	0.239			
	Min	0	0	0			
	Max	1	1	1			
	N	1034	2568	3602			

Table A2: Initial requests, initial offers and final offers and concessions over existing tariffs for all acceding countries in the Torquay Round. "Sales" refer to requests of and offers on own tariffs. "Purchases" refer to requests of and offers on the tariffs of the bargaining partner. Country-Specific numbers refer to a given Seller-Purchaser-HS6, and describe the evolution of tariff concessions from initial requests to finalized agreed concession. Some goods appear in both the ad valorem and specific columns. Cross-Country numbers refer to a given Seller-HS6, and describe the evolution of tariff concessions from initial requests to the last offer made.

Table 4.2 (Reproduced from Table A2 of the Online Appendix to Bagwell, Staiger and Yurukoglu, 2020a)

In each table, the Sales columns refer to requests of and offers on a country's own tariffs, while the Purchases columns refer to requests of and offers on the tariffs of the country's bargaining partner. The top panel of each table presents Country-Specific numbers that refer to a given Seller-Purchaser-HS6, while the bottom panel of each table presents Cross-Country numbers that refer to a given Seller-HS6 across all its bargaining partners. As the Sales columns of the top panel Table 4.1 reflect, when the focus is limited to experienced GATT negotiators, on average the initial offers reduced tariffs to 80.8 percent of their existing levels and the final offers reduced tariffs to 80.6 percent of their existing levels, corresponding to an average downward movement in offers made within a bilateral for these countries that amounted to 0.2 percent. By contrast, for the GATT newcomers, the Sales columns of the top panel of Table 4.2 reveals that the analogous numbers

were 85.5 percent and 81.9 percent, amounting to an average downward movement in offers made within a bilateral for the newcomer countries that amounted to 4.2 percent. And a comparison of the Purchases columns across the two tables indicates that bargaining partners did not alter their behavior when confronted with the bargaining behavior of newcomers: on average the downward movement in the offers made to experienced and first-time GATT negotiators was 0.015 percent and 0.013 percent, respectively.

Third, there is evidence that multilateral linkages gave rise to issues of sequencing across the bilaterals. Initial offers on the table would sometimes sit dormant for long periods of time, only to be finalized with a single modification at the time that other bargains were also being concluded. Specifically, Bagwell, Staiger and Yurukoglu report that for bilaterals that ended in a final agreement, an average of 11.8 weeks passed between the last offer or modified offer made in the bilateral and the announcement of an agreement. And some agreements were themselves also modified at the conclusion of the round. Bagwell, Staiger and Yurukoglu report that, for the average agreement, modifications applied to 3.5 percent of the total number of products on which initial agreement was reached.[49]

Bagwell, Staiger and Yurukoglu also provide evidence that these multilateral linkages were driven by a desire of governments to maintain multilateral reciprocity in their bargains. They do this by exploiting the unexpected collapse of a number of bilaterals that occurred in the middle of the Torquay Round, where these bilaterals involved the United States on one side and the UK and several of its Commonwealth partners on the other side. As Bagwell, Staiger and Yurukoglu observe, if third parties were counting on indirect trade benefits from the MFN tariff cuts negotiated in the US-UK/Commonwealth country bilaterals to help them achieve multilateral reciprocity in the Torquay Round, then there should have been an observable reaction in the bilateral bargaining records of these third countries and their bargaining partners when the US-UK/Commonwealth country bilaterals unexpectedly collapsed, as these third countries would have sought to rebalance their outstanding offers in light of this development and re-establish multilateral reciprocity; whereas no such reaction would be expected if strictly bilateral reciprocity had been demanded and achieved by all countries all along. Analyzing the bargaining records, Bagwell, Staiger and Yurukoglu find that, sub-

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[49]As Bagwell, Staiger and Yurukoglu note, a feature of the Torquay Round bargaining data that is not accounted for by the theoretical framework I have outlined above is the fact that, when a country chose to reduce the depth of its offers, it did so by removing products from its offers, not by reducing the magnitude of the tariff cut offered on a given product.

sequent to the collapse of the US-UK/Commonwealth country bilaterals, third countries did indeed scale back their outstanding offers to the United States and its Commonwealth bargaining partners at the same time that the United States and its Commonwealth bargaining partners reoriented their offers toward these third countries, consistent with the view that important rebalancing with third countries occurred after the collapse of the US-UK/Commonwealth country bilaterals and therefore with the view that the attainment of multilateral as opposed to bilateral reciprocity was an important feature of the Torquay Round.

Overall, the evidence from the bargaining records of the Torquay Round supports two important claims. First, this evidence confirms that the bargaining behavior in the Torquay Round can be usefully interpreted through the lens of the terms-of-trade theory, suggesting in turn that this theoretical framework captures an important component of what governments were trying to achieve when they created GATT. And second, it confirms that there is an economic logic to the pillars of GATT's architecture when it comes to the bargaining forum that these pillars helped to create, and that the apparently non-strategic nature of the bargaining behavior induced by these pillars arguably contributed importantly to the success of GATT tariff bargaining relative to what had come before.

Of course, as I alluded to earlier, it is not self-evident that the terms-of-trade driven prisoner's dilemma that seems to lie at the heart of the problem that the GATT was created to address 75 years ago is still the central problem that a trade agreement should be designed to address today. And even if the goal *is* to help governments escape from their terms-of-trade driven prisoner's dilemma, the evidence I have reviewed here does not imply that GATT's architecture is perfect or that it cannot be improved upon. But at a minimum, this evidence suggests that the GATT architecture warrants respect – not because it seems to produce "good outcomes," but because it seems well-designed to address an important problem and can therefore claim a deeper legitimacy – and that the GATT/WTO should not be discarded in favor of a new institutional approach without an understanding of what would be lost. In their discussion of the meaning of legitimacy in the context of global governance institutions more generally, Buchanan and Keohane (2006, p. 407) put the point this way:

> Judgments about institutional legitimacy have distinctive practical impli-
> cations. Generally speaking, if an institution is legitimate, then this legit-
> imacy should shape the character of both our responses to the claims it
> makes on us and the form that our criticisms of it take. We should support
> or at least refrain from interfering with legitimate institutions. Further,

agents of legitimate institutions deserve a kind of impersonal respect, even when we voice serious criticisms of them. Judging an institution to be legitimate, if flawed, focuses critical discourse by signaling that the appropriate objective is to reform it, rather than to reject it outright.

5. The Rise of Large Emerging Markets

The rise in economic importance of the large emerging and developing economies has brought these countries to the forefront of the world economy, with China playing a leading role. This has created three interrelated challenges for the world trading system. I argue in this chapter that the WTO, with some possible adjustments, is in principle well-designed to address these challenges.

First, there has emerged a substantial departure from reciprocity between China and its major industrialized trading partners. Below I suggest that the implied need for *rebalancing market access commitments* can be addressed with non-violation claims, but with a twist: to ensure their success, these claims should be aided by China. And while such cooperation between the claimant and respondent in a GATT/WTO dispute would be unprecedented, I argue that in this case cooperation from China is warranted, as successful non-violation claims against China are in China's own interests. This is because the goal of the non-violation claims is not to pressure China into introducing market reforms to its economy; rather the goal is to allow China to find additional policy commitments, tailored to compensate for the non-market elements of its economy, that can serve as "market-access preservation rules," much as the role as I noted in chapter 4 that GATT Articles play for market-oriented economies. And it is in China's own interests, just as it is in each WTO member's own interests, to be part of a world trading system that is effective in permitting the voluntary exchange of secure negotiated market access commitments between its members.

Second, even once reciprocity between China and its major industrialized trading partners is established, there is a possibility that the Uruguay Round tariff commitments made by industrialized countries now imply the grant of a greater level of market access than these countries are comfortable with. Below I suggest that the implied need for *reconsideration of the level of market access commitments*, where necessary, can be addressed with Article XXVIII renegotiations.

And third, an asymmetry in the level of market access commitments between the developing/emerging economies and industrialized countries has emerged that is now hindering the ability of the former to gain from WTO membership. Below

I suggest that this *"latecomers problem"* can be addressed with Article XXVIII renegotiations between industrialized countries, followed by Article XXVIII bis negotiations between industrialized and developing/emerging countries.

5.1. Rebalancing market access commitments

Industrialized countries have grown increasingly frustrated with the inability of WTO rules to effectively discipline China's economic policies, owing to the non-market features of China's economy. For example, in its 2020 *Report to Congress on China's WTO Compliance*, the United States Trade Representative stated:

> ...China's non-market approach has imposed, and continues to impose, substantial costs on WTO members. In our prior reports, we identified and explained the numerous policies and practices pursued by China that harm and disadvantage U.S. companies and workers, often severely. It is clear that the costs associated with China's unfair and distortive policies and practices have been substantial. For example, China's non-market economic system and the industrial policies that flow from it have systematically distorted critical sectors of the global economy such as steel, aluminum, solar and fisheries, devastating markets in the United States and other countries. China also continues to block valuable sectors of its economy from foreign competition, particularly services sectors. At the same time, China's industrial policies are increasingly responsible for displacing companies in new, emerging sectors of the global economy, as the Chinese government and the Chinese Communist Party powerfully intervene on behalf of China's domestic industries. Companies in economies disciplined by the market cannot effectively compete with both Chinese companies and the Chinese state. (USTR 2021, p 2)

Similar frustrations about China's economic policies have been voiced by the EU (see, for example, European Commission, 2016).

Wu (2016, p 284) attributes this frustration not so much to any one specific China policy or even a handful of specific policies, but rather to China's "complex web of overlapping networks and relationships – some formal and others informal – between the state, Party, SOEs [State Owned Enterprises], private enterprises, financial institutions, investment vehicles, trade associations, and so on." Adding to this frustration is the fact that many of the distinct elements of China's unique economic model were put in place after its 2001 accession to the WTO. But rather

than reflecting frustration with a bad-faith effort on the part of China to escape from its WTO commitments, it is more accurate to say that the growing frustration among industrialized countries reflects their unmet expectations that China would have by now evolved further in the direction of a market-oriented economy than it, in fact, has. Summarizing the nexus of non-market forces operating in China with the moniker "China, Inc.," Wu puts the point this way:

> This is not to suggest that the Chinese concealed their true intentions. Throughout the 1990s, Chinese leaders openly and repeatedly stated that they sought to forge their own unique economic system. Moreover, economic developments in China's reform era have proceeded largely through incremental rather than through radical, abrupt policy shifts. Thus, the development of China, Inc. should not be understood as a deliberate ex post act to circumvent WTO rules. (Wu, 2016, p. 292, footnotes omitted)

As Wu (2016) describes it, China, Inc. poses a particularly subtle challenge for the WTO. This is because the pursuit of complaints against China's policies through the WTO dispute settlement system has not been altogether unsuccessful in helping China's trading partners address these concerns. As Wu documents, when it comes to certain kinds of issues, such as state-coordinated economic actions, local content requirements and state trading enterprises, the GATT/WTO legal framework has proven to be effective against those countries that have used such policies in the past, and it continues to be effective against China's use of these policies. The real challenge is to be found in other issues raised by China's policies – such as the definition of a "public body" in the context of defining the reach of WTO disciplines on subsidies, and whether China's trading partners can treat it as a non-market economy for purposes of administering their antidumping laws – which involve technical legal and factual questions that the WTO dispute settlement body has little prior experience resolving, with trade stakes that are potentially enormous. Left unaddressed and in light of China's sheer size, these issues have the potential to upset the fundamental balance between market access rights and obligations that lies at the core of the GATT/WTO bargain. And they are the kinds of thorny issues posed by China, Inc. on which, Wu argues, the WTO could founder.

So how should the WTO confront the China, Inc. challenge? To answer this question it is clarifying first to pause and revisit a fundamental question that I considered in chapter 2: What is the purpose of a trade agreement? In chapter 2 I argued that the purpose of a trade agreement in a wide range of settings

can be seen as expanding market access to internationally efficient levels. But in all of the settings I considered there, market forces – subject to the kinds of government policy interventions that typify those found in market economies – were assumed to shape the decisions of firms and consumers everywhere. Does the purpose of a trade agreement change when one of the countries adopts an economic system like China, Inc.? Reassuringly, it is straightforward to see that the answer to this question is "No," as long as world prices continue to be determined via the international market clearing conditions that equate quantities demanded to quantities supplied on world markets. This is because the fact that one country chooses to organize the economic activity within its borders under a policy regime that features important non-market elements does not alter the fundamental international externality – namely, the world-price or terms-of-trade externality – that is generated by the unilateral policy choices of this country and the unilateral policy choices of its trading partners, and that underpins the essential insufficient-market-access problem for a trade agreement to solve.

A simple way to see this is to think of noncooperative Nash policies as being determined in two steps: first, facing the constraints imposed by international market clearing conditions, a national social planner in each country determines the economic magnitudes (the "allocation") within its national borders; and second, in each country the national social planner then chooses whether to decentralize the implementation of the desired within-country allocation using a market system and appropriate tax/subsidy/regulatory policies, or whether instead to impose this allocation directly on its citizens by fiat. The choice made in this second step could be interpreted as determining whether a country is market-oriented or not. Choosing the first option amounts to the familiar "primal" approach to solving the optimal policy problem, whereby the fictional planner decides on the allocation and then implements the desired allocation in a market economy with the appropriate policy instruments. Choosing the second option simply omits the use of markets to implement the desired allocation. But these choices will not impact the nature of the problem for a trade agreement to solve.[50]

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[50]In chapter 2 I made use of the politically optimal point on the efficiency frontier (Bagwell and Staiger, 1999, 2002) to conclude that the purpose of a trade agreement is to eliminate the unilateral incentive that governments have to manipulate their terms of trade. As long as the underlying objectives of each government can be represented as a function of the within-country allocation – and the local and world prices that would be needed to implement that allocation in a market economy – as stipulated in (2.7)-(2.9), it is immaterial for those arguments whether governments actually choose to implement their desired within-country allocations through the decentralized mechanism of the market or rather through a command economy. This also helps

Confirming that the purpose of a trade agreement is unchanged from that identified in chapter 2 when a country adopts an economic system like China, Inc. is clarifying, because it indicates that the challenge for the WTO posed by China's entry into the world trading system is not to find the capacity to evolve beyond its essential market-access focus in order to successfully accommodate China. Rather, the challenge, succinctly put, is this: the WTO must find a way for China to make additional policy commitments, tailored to compensate for the non-market elements of its economy, that can serve the role of preserving the market access implied by its tariff bindings, much as the role that GATT Articles play for market-oriented economies (see, for example, note 29). Evidently, there is no reason to think that China's entry into the world trading system raises issues that are fundamentally inconsistent with the WTO's underlying mandate. To the contrary, the market access orientation of the GATT/WTO provides a useful guardrail for what China should be willing to contemplate – and what other WTO members have a right to expect – in the context of its WTO commitments.

In essence, then, the current circumstances that the WTO finds itself in with regard to China's economic policies can be summarized as follows. Upon China's 2001 accession to the WTO, its major industrialized trading partners believed that existing WTO rules, in combination with (a) the very substantial tariff bindings and additional specific market access commitments they had secured from China as part of its accession negotiations and (b) their expectation that China would evolve strongly in the direction of a more market oriented economy, were sufficient to ensure that China's tariff bindings represented market access commitments that would deliver the appropriate balance between rights and obligations. But the initial set of specific commitments that China agreed to as a condition for accession to the WTO has turned out to be unsatisfactory for this purpose. This is not because China has failed to live up to its specific commitments or to comply with WTO rulings against it when it has not.[51] Rather, it is because China has not

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to clarify what *would* cause a problem for my argument: if, for example, China sought to use its policies to maximize its share of world trade, then its objectives would depend on more than simply its within-country allocations – its objectives would depend also on the trade volumes of other countries and therefore directly on their local prices – and the purpose of a trade agreement would no longer conform to the purpose I described in chapter 2. But notice that such an objective function would imply a different purpose to trade agreements independent of whether this description fit the government of a command economy or a market economy. So this has nothing to do with China as China, Inc. per se.

[51] As Wu (2016) notes, many of the specific commitments agreed to by China as part of its WTO Protocol of Accession (see WTO, 2001) can be litigated successfully in the WTO (and

evolved toward a market economy as quickly as these trading partners expected, and it does not now appear that China is likely to evolve toward a market-oriented economy as strongly as these trading partners once hoped.

If this is an accurate summary of the China, Inc. challenge faced by the WTO, then the non-violation clause provides a promising path for WTO members to address the current impasse. This point is made forcefully by Hillman (2018) who, in describing the role of a non-violation claim in the context of her Congressional testimony about the best way for the United States to address the challenges created by China's economic policies, observes:[52]

> It is exactly for this type of situation that the non-violation nullification and impairment clause was drafted. The United States and all other WTO members had legitimate expectations that China would increasingly behave as a market economy—that it would achieve a discernible separation between its government and its private sector, that private property rights and an understanding of who controls and makes decisions in major enterprises would be clear, that subsidies would be curtailed, that theft of IP [Intellectual Property] rights would be punished and diminished in amount, that SOEs would make purchases based on commercial considerations, that the Communist Party would not, by fiat, occupy critical seats within major "private" enterprises and that standards and regulations would be published for all to see. It is this collective failure by China, rather than any specific violation of individual provisions, that should form of the core of a big, bold WTO case. Because addressing these cross-cutting, systemic problems is the only way to correct for the collective failures of both the rules-based trading system and China. (Hillman, 2018, pp 10-11)

Importantly, by focusing on the departure from reciprocity in market access commitments and the implied imbalance itself, rather than attempting to identify specific policies that may have violated WTO legal obligations and led to this

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have been, where violation claims against it have been brought), so they are not the source of the challenge posed by China, Inc.. And on China's record of compliance with WTO rulings against it, see Webster (2014) and Zhou (2019).

[52]The non-violation clause in the original GATT 1947 was incorporated into the WTO Agreements in GATT 1994, in the General Agreement on Trade in Services (GATS), and in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). However, WTO members agreed to an extendable 5-year moratorium on the use of the non-violation clause in TRIPS, and this moratorium is still in place today. Hence, it is not clear that the non-violation clause could be utilized to address concerns about China's intellectual property rights regime.

imbalance, the non-violation complaint can side-step the kinds of thorny legal and factual issues noted above and described by Wu (2016). This feature of non-violation complaints is highlighted by Sykes (2005) in the context of disciplines on domestic subsidies:

> A nice feature of the nonviolation doctrine is the fact that it does not require subsidies to be carefully defined or measured. A complaining member need simply demonstrate that an unanticipated government program has improved the competitive position of domestic firms at the expense of their foreign competition. (Sykes, 2005, p 98).

Moreover, as I describe in Staiger (2021, chapter 6), under a successful non-violation claim the defendant government is under no obligation to remove the measures at issue, but if it does not remove them then the claimant government is owed compensation, the level of which is subject to arbitration by the WTO Dispute Settlement Body. Hence, a non-violation claim would provide China with the freedom to decide whether and, if so, how best to offer secure market access commitments to its trading partners that can reestablish reciprocity, with the knowledge that if its offer of market access commitments is not sufficient for this purpose then its trading partners have the right to restore reciprocity by withdrawing market access concessions of their own as part of the resolution of a successful non-violation claim. In this way, the non-violation clause would be serving exactly the role it was designed to serve, namely, as Petersmann (1977) observes, to provide a check on the domestic policy autonomy of member-countries, "... and to prevent the circumvention of the provisions in GATT Article XXVIII ... if a member, rather than withdrawing a concession de jure in exchange for compensation or equivalent withdrawals of concessions by affected contracting parties, withdraws a concession de facto." (p. 172). And crucially, any disagreements over the magnitude of the policy adjustments required to restore reciprocity between China and its trading partners would be referred to the relevant WTO dispute settlement bodies for a ruling, thereby keeping the resolution of these issues within the rules-based multilateral system.[53]

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[53]What kinds of commitments might China offer as a way to reestablish reciprocity? It is possible that China might be able to find certain policy commitments that would have clear market access implications without undermining core features of its chosen economic system. And it is possible that transparency issues would warrant the use of certain quantity commitments rather than tariff commitments as a second-best tool for generating market access commitments, as were utilized in the GATT accession agreements for Poland and Romania (see, for example,

This perspective also yields an important insight into the nature of the challenge that China, Inc. poses for the world trading system, and the choices that are available to the WTO membership to address this challenge. Recall from above that there were two elements to China's accession negotiations: (a) a list of agreed specific market access commitments, and (b) an expectation that China would evolve strongly toward a market economy. And recall that the imbalance between China's market access rights and obligations has emerged as a result of the failure of (b): China has not evolved toward a market economy to the extent that its trading partners expected. Does this imply that the only solution is for China to now promise to evolve to a market economy at the speed and to the degree that fulfills those expectations? Not at all, because it is clear from the above that there is an alternative solution, and one that is more targeted to the underlying source of the trade tension. The alternative is for China to agree to additional specific market access commitments of its own choosing, and therefore to compensate for the unanticipated non-market features of its economy and hence for the shortfall in part (b) by augmenting its specific commitments in part (a); and this is what the non-violation clause can facilitate. Looked at in this way, there is no reason to think that, unless China chooses to relinquish China, Inc. as its chosen economic model, "decoupling" China from the world trading system is the inevitable endgame.[54]

Kostecki, 1974, and Haus, 1991). More generally, it is likely that a combination of measures might be needed to secure market access commitments from China, but it is also likely that China is in the best position to know what combination of measures would be most effective while minimizing inconsistencies with its desired economic system.

[54]Here my position diverges somewhat from Hillman (2018, p. 13), who describes the choice facing China as one of reforming its economic system or exiting the WTO. There is still the important question of whether China can, in fact, find ways to make the needed additional market access commitments given the unique features of its economic system. And this would no doubt be a difficult task. But as observed above (see note 53), several of the non-market economies of Eastern Europe found creative ways to do this when they joined the GATT in the 1960's and 70's, suggesting that China might find similarly unorthodox ways to make market access commitments that can respond to those non-market features of its economic system that were not anticipated by WTO members at the time of China's WTO accession but that China wishes to preserve. And while finding effective disciplines on China's subsidies will be particularly important and may ultimately entail reforms of the WTO's Agreement on Subsidies and Countervailing Measures in the wider context of WTO multilateral or plurilateral negotiations (see Bown and Hillman, 2019), Zhou and Fang (2021) have argued that these reforms are not necessary to address the China-specific issues that arise in the context of subsidy disciplines and that such reforms would therefore be better approached outside the context of China-specific trade tensions.

Clarifying the challenge for the WTO posed by China, Inc. also has a potential side benefit. As is well known, bringing successful non-violation claims in the GATT/WTO is exceptionally difficult, and indeed this is so by design. As one WTO Panel report put it, "... the non-violation nullification or impairment remedy should be approached with caution and treated as an exceptional concept. The reason for this caution is straightforward. Members negotiate the rules that they agree to follow and only exceptionally would expect to be challenged for actions not in contravention of those rules" (WTO, 1998). But once it is understood that the goal of a non-violation claim is to find a way to allow China to make meaningful market access commitments, and not to confront China with a choice between either reforming its economy or else decoupling from the world trading system, it then also becomes more likely that China would see it in its own interests to facilitate a successful rebalancing within the context of such a claim, and enlisting China's support in bringing such a claim might even be feasible. This is because it is in China's own interests, just as it is in each WTO member's own interests, to be part of a world trading system that is effective in permitting the voluntary exchange of secure negotiated market access commitments between its members. And this is especially so if the current imbalances in the world trading system attributable to China's accession to the WTO are putting the WTO at serious risk of foundering. So while enlisting China's support in bringing such claims against it would be unprecedented, it is not unreasonable to attempt to do so given the unique challenge that China poses for the WTO and the world trading system.

This is not to say that the more traditional WTO violation claims against China, where viable, should not also be brought, just as with viable violation claims against any WTO member. Indeed, in her testimony to Congress about the WTO case that the US should bring against China, Hillman (2018) lists 11 specific issue areas where violation claims against China might be viable (and as Hillman notes, her list is not meant to be exhaustive). But as both Hillman and also Wu (2016) make clear, even if such violation claims were all successful they are not likely to address the fundamental sources of the imbalances that have emerged in China's market access rights and obligations and that have led to the growing frustrations of industrialized countries with China, Inc. By channeling these frustrations into non-violation claims, where such claims might perhaps be aided by China itself and where the process of filing and resolving these claims might also serve as a mechanism for resolving among the parties any pending or imminent violation claims, the existing GATT/WTO procedures for dispute

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settlement can be most effectively put to use.

Finally, an added benefit of addressing this issue with non-violation claims is that it helps to draw a clean distinction between concerns over non-reciprocity with China on the one hand, and the possibility that even with reciprocity established a WTO member might wish to rethink its own level of market access commitments on the other; and it allows these two separable issues to be addressed on separate tracks. As I describe next, the second issue is best addressed within the context of Article XXVIII renegotiations. And the separation of these two issues is crucial, because while the maintenance of reciprocity should be a central concern of attempts to address the second issue (and would be under Article XXVIII renegotiations), by design it *cannot* be a feature of the solution to the first issue (and would not be under a non-violation claim, where the whole point is to address an *im*balance and thereby *restore* reciprocity).

5.2. Reconsideration of the level of market access commitments

Suppose that the imbalance between China's market access rights and obligations in the WTO can be addressed, and that reciprocity is restored in the world trading system. Does this mean that all of the major challenges to the world trading system presented by the rise of the large emerging markets will have been met? In this and the next subsection I suggest that the answer to this question is "No," by describing two additional challenges that would still remain. A first challenge relates to the impact on industrialized country income inequality that the rise of large emerging markets has had. Whether this impact would be mitigated or rather exacerbated by the restoration of reciprocity with China depends in part on how reciprocity is restored; and in particular this depends on whether reciprocity with China is restored by an expansion of access to the markets of China, or rather by a reduction in access to the markets of the industrialized world. I discuss this challenge in this subsection. A second challenge relates to the history of reciprocal tariff negotiations in GATT, the historical lack of participation by nonindustrialized countries in these negotiations, and how that history has positioned the world trading system going forward in the presence of the large emerging markets today. I discuss this challenge in the next subsection.

Concerns about the possible adverse effects of trade on income inequality are not new, and indeed such effects are central predictions of the standard neoclassical models of trade. But as of the mid 1990's the general view among economists was that as an empirical matter the distributional impacts of trade were relatively

modest. Today that view is markedly less sanguine, thanks in part to changes in the nature and scale of trade over the past three decades – including a dramatic rise in the manufacturing exports of developing and emerging economies – and thanks in part also to changes in the focus of the economics research investigating these effects (a shift in focus from economy-wide impacts to local labor market effects).[55] This observation is especially illuminating for the current discussion, because the WTO tariff commitments in place today are the product of multi-lateral market access negotiations in the Uruguay Round that were completed in 1994 with the signing of the Marrakesh Agreement that created the WTO. In this light, there is a possibility that the Uruguay Round tariff commitments made by some industrialized countries now imply the grant of a greater level of market access than these countries are comfortable with given the level of income inequality that they are now grappling with.[56]

In short, it would not be unreasonable if those industrialized countries that have experienced a significant increase in income inequality over the past several decades now wanted to pause and reconsider some of their existing tariff commitments, given that these commitments were made before the rise of the large emerging markets at a time when it was thought that the potential for trade to generate significant income inequality issues within industrialized countries was small. Of course, a convincing argument that the reimposition of tariffs is an appropriate response to a country's concerns about income inequality would have to clear several important hurdles.

A first hurdle is to demonstrate that there are not alternative policy responses that are available to the government and that could address its concerns about income inequality at lower overall cost to the economy. At a general level, the targeting principle (Bhagwati and Ramaswami, 1963) implies that tariffs will almost never be the first-best policy choice for achieving any particular goal (the exception being for purposes of terms-of-trade manipulation, a consideration which should play no role in clearing this first hurdle). For example, at least for those countries that have the means to finance them, the use of production subsidies would typically dominate tariffs as a policy tool for addressing concerns about

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[55]See Krugman (2019) for a nice summary of the evolution of economists' thinking on the link between trade and income inequality. The local labor market impacts of trade competition were first considered by Borjas and Ramey (1995); Autor, Dorn and Hanson (2013) were the first to investigate the regional/local labor market impacts of trade with China.

[56]Not all countries have experienced rising income inequality over this period. See Bourguignon (2019) on the substantial cross-country diversity of trends in income inequality over the past 30 years.

income inequality.[57] But as I noted in chapter 2, in the real world such policies may not, in fact, be widely available to all countries. Indeed, this may be true even for rich countries: for example, after describing the labor market policies and programs that are available in the United States, Kletzer (2019, p 171) concludes that "Despite the array of US programs, there is considerable evidence that these labor market interventions are inadequate."[58]

A second hurdle is to demonstrate that the proposed tariff increases would actually have the intended effect on income inequality. This demonstration is complicated by the fact that technology as well as factor endowments within the industrialized countries have changed dramatically over the period that income inequality has risen, and it is therefore almost certainly true that "turning back the clock" with tariffs to achieve the trade patterns and volumes that a country experienced in an earlier time would not bring back the income distribution that the country had experienced at that time. Notice, though, that the effectiveness of tariffs as a response to rising income inequality in a country does not hinge on whether trade has *caused* the rise in inequality; rather it is simply a question of whether the use of tariffs – and the price effects that their use would generate in the country – might be part of the optimal response to addressing inequality, whatever its causes, given the technologies and factor endowments that exist today.[59]

Where does this discussion leave us? The reimposition of tariffs surely cannot be the centerpiece of an appropriate response to concerns about income inequal-

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[57]In this regard, the WTO's Agreement on Subsidies and Countervailing Measures (SCM Agreement), which regulates the use of subsidies relating to trade in goods, includes a provision (Article 8.2(b)) that identifies assistance to disadvantaged regions as "non-actionable," granting WTO member governments wide latitude to implement the kinds of subsidies that might be called for in addressing income inequality related to the local labor market effects of trade. However, this provision was temporary, and it was allowed to lapse at the end of 1999. Reforming the SCM Agreement to reinstate Article 8 in some form would help to remove WTO legal barriers that could have the effect of precluding the use of subsidies over tariffs for purposes of addressing income inequality concerns, and on these general grounds would be supported by the targeting-principle logic. See, for example, Charnovitz (2014), who makes similar arguments for the reinstatement of Article 8 in some form as that article relates to environmental subsidies.

[58]That said, it should be noted that Kletzer (2019) advocates for implementing a program of wage insurance in the United States, not the use of tariffs.

[59]I am abstracting from the dynamic effects of tariffs on technologies and factor supplies. There is also the deeper question whether income inequality as typically measured, or rather broader measures of economic inequality such as inequality in job tenure prospects and the prospects for one's children, should be the target of policy interventions, and how trade policy interventions would measure up to other available policy responses with such targets in mind. See Bourguignon (2019) for an illuminating discussion of these issues.

ity. But in light of the complexity of the issues involved and the evident lack of first-best policy instruments to address these issues, neither does there appear to be a compelling reason that tariff responses – above all other possible second-best policy responses – should be taken off the table. In the abstract, a sensible position might therefore be that industrialized countries that have experienced rising income inequality and have concerns about this development should be able to reconsider some of their Uruguay Round tariff commitments as part of a broader package of policy interventions to address these concerns.

How would the restoration of reciprocity between China and its industrialized-country trading partners impact these considerations? As I mentioned above, that would depend in part on how reciprocity is restored. If reciprocity with China is restored as a result of a reduction in access to the markets of the industrialized world, then this implies that some industrialized-country tariffs would rise, and these tariff increases might be structured so as to mitigate income inequality concerns in industrialized countries. On the other hand, if reciprocity with China is restored as a result of an expansion of access to the markets of China, then this implies that China would be liberalizing its import regime which, if this does not impact China's overall trade imbalance, implies that China will also be exporting more, a scenario that is likely to exacerbate the existing income inequality concerns of industrialized countries.[60] The upshot is that restoring reciprocity between China and its industrialized-country trading partners is unlikely to address the existing concerns over income inequality in industrialized countries, and might even exacerbate these concerns.

This brings me to the possibility of Article XXVIII renegotiations. Specifically, while I argued above that the non-violation clause is well-designed to deal with concerns over non-reciprocity with China, I now argue that Article XXVIII is well-designed to deal with the possibility that, even with reciprocity established, a WTO member might wish to rethink its own level of market access commitments.

Hoda (2001) describes the mechanics of Article XXVIII renegotiations in detail, and provides a comprehensive history of the hundreds of renegotiations that have occurred over the GATT and early WTO years. In brief, countries do not

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[60]Absent any impact on its overall trade imbalance, and holding its terms-of-trade fixed, China's unilateral import liberalization would lead to equivalent increases in its exports; and if China is large in the import markets where it liberalizes, then its terms of trade should deteriorate, implying an even larger increase in its exports to maintain its existing trade balance. Of course, if China were to make policy changes that altered its overall trade balance, additional considerations would come into play. Krugman (2019) provides a recent discussion of the potentially important impact of trade imbalances on U.S. income inequality in the short run.

need to provide a rationale to initiate renegotiations under Article XXVIII, but simply need to initiate these renegotiations following the procedures laid out in Article XXVIII.

As Hoda (2001) explains, the key features of Article XXVIII renegotiations are that a country is allowed to modify or withdraw the tariff commitments that are the subject of its renegotiations, even if it cannot (within defined time limits) reach agreement in those negotiations with its impacted trading partners; and that its impacted trading partners are then allowed to respond – at most – in a reciprocal manner by withdrawing "substantially equivalent" tariff commitments of their own, where any disagreements over what constitutes substantially equivalent tariff commitments are subject to rulings of the relevant GATT/WTO dispute settlement bodies. In this way, with reciprocal actions defining the disagreement or "threat" point to the negotiations, Article XXVIII renegotiations avoid the possibility that a threatened or actual breakdown in those negotiations could hold up the modifications that a country desires to make to its tariff commitments. At the same time these renegotiations imply that the original balance of negotiated reciprocal tariff commitments between the country and its trading partners is preserved; this last feature is important, because as discussed in chapter 4, the application of reciprocity that delivers it ensures that inefficient terms-of-trade motives are removed from the country's incentives to initiate the renegotiation.[61]

The features of Article XXVIII that I have just described are the reason that legal scholars claim that GATT/WTO tariff commitments are designed to operate as "liability rules." For example, as I describe in Staiger (2021, chapter 6), Pauwelyn (2008) distinguishes between GATT Articles that are designed as liability rules and others that are designed as property rules, and he designates tariff commitments as liability rules on the basis of the renegotiation opportunities provided by Article XXVIII (as well as other similar but temporary escapes such as the GATT Safeguard clause Article XIX). In explaining the logic of this design, Pauwelyn (2008, p 137) writes:

> . . . trade negotiators cannot foresee all possible situations, nor can they predict future economic and political developments, both at home and internationally. As a result of this uncertainty, they wanted the flexibility of a liability rule."

An important benefit of a liability rule is that it can allow for "efficient breach." Schwartz and Sykes (2002, p S181) put the point this way:

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[61]Bagwell and Staiger (1999, 2002) emphasize these incentive effects of reciprocity.

> Economic theory teaches that a key objective of an enforcement system is to induce a party to comply with its obligations whenever compliance will yield greater benefits to the promisee than costs to the promisor, while allowing the promisor to depart from its obligations whenever the costs of compliance to the promisor exceed the benefits to the promisee. In the parlance of contract theory, the objective is to deter inefficient breaches but to encourage efficient ones.

It is exactly in the spirit of efficient breach that limited use of Article XXVIII renegotiations might be made by those industrialized countries that are concerned about rising inequality and wish to reconsider some of their Uruguay Round tariff commitments as part of a broader package of policy interventions to address these concerns. Importantly, under the rules of Article XXVIII, those countries would not be making this choice "for free." Rather, they would be making this choice with the knowledge that any modification or withdrawal of tariff commitments would be met with reciprocal withdrawals of market access by their effected trading partners; and if a country still prefers to raise its tariffs under these conditions, then that is how the GATT renegotiation process approximates efficient breach.[62]

It is also instructive to consider what can happen in a renegotiation of trade commitments that are not designed to operate as liability rules. Although it is not directly comparable to the Article XXVIII renegotiation of a GATT tariff commitment, the Brexit negotiations for the withdrawal of the United Kingdom from the European Union provide something of a cautionary tale. These negotiations, which had no meaningful equivalent to the reciprocity "buy out" provision of GATT's Article XXVIII that could have acted as a threat point for the outcome of the negotiations, officially began on March 29 2017 when the United Kingdom activated its withdrawal notice under Article 50 of the Treaty on European Union, and the negotiations were concluded in October of 2019. As is well known, the initial two-year negotiation period had to be extended in order that an agreement on the terms of withdrawal could be reached, and the negotiations were fraught with seemingly ample room for strategic behavior.[63] The liability-rule structure of GATT Article XXVIII renegotiations acts as an insurance policy against the possibility that such renegotiations would devolve into a Brexit-like situation.[64]

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[62]Maggi and Staiger (2015) provide a formal rationale for the efficient-breach role that the reciprocity rule can play in a model where international transfers are costly.

[63]See, for example, Martill and Staiger (2014) on the bargaining strategy pursued by the UK in its Brexit negotiations.

[64]In part, provided that flexibility in market access commitments is valued, this comparison

5.3. The latecomers problem

I began this chapter by noting that there are three interrelated challenges for the world trading system created by the rise in economic importance of the large emerging and developing economies. The first of the challenges that I described above centers on China. And owing to its sheer size in world trade, China undoubtedly plays a leading role in the second challenge that I described above as well.

The third challenge that I now describe is due to an asymmetry in the level of market access commitments between the developing/emerging economies on the one hand, and industrialized countries on the other. This asymmetry arose as a result of the historical lack of participation of non-industrialized countries in 50 years of GATT reciprocal tariff negotiations, and it has led to what Bagwell and Staiger (2014) call a "latecomers problem" for the WTO which may be hindering the ability of many of the developing and emerging economies to gain from GATT/WTO membership. Because China made far more significant (though, as it turned out, still not reciprocal) market access concessions as part of its 2001 protocol for accession to the WTO than have any other emerging and developing economy WTO members to date, this third challenge is less about China than it is about other emerging and developing economies.[65] Following Bagwell and Staiger, I now briefly describe the latecomers problem and how it might be addressed with GATT Article XXVIII renegotiations between industrialized countries followed by Article XXVIII bis negotiations between industrialized and developing/emerging countries.[66]

Recall from chapter 4 that, according to the terms-of-trade theory, negotiations that abide by the principles of MFN and reciprocity can eliminate third-party spillovers from bilateral tariff bargaining. As I described in that chapter, this feature underpins some of the desirable efficiency properties of a tariff negotiating

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also illustrates an advantage of GATT's shallow integration approach. It is difficult to see how a liability-rule approach to market access commitments could be possible with a deep-integration agreement such as the European Union. On the other hand, if such flexibility is not valued, as would be the case according to the commitment theory of trade agreements (see note 9), then the fact that this possibility arises under shallow integration is not an attractive feature of the GATT/WTO approach.

[65]On the unusually far-reaching market access commitments that China agreed to in its protocol of accession to the WTO relative to other developing and emerging economy GATT/WTO members, see for example, Lardy (2001).

[66]In chapter 6 I will consider an additional, possibly complementary, way of addressing the latecomers problem within the context of climate policy.

forum such as GATT that relies heavily on bilateral tariff bargaining and is built on the pillars of MFN and reciprocity.

But historically GATT has extended to its developing country members an exception to the reciprocity norm, codified under "special and differential treatment," or SDT, clauses. These clauses were intended to provide developing countries with a "free pass" on the MFN tariff cuts that the developed countries negotiated with one another, and in this way to allow developing country exporters to then share with exporters from developed countries in the benefits of greater MFN access to developed country markets.

As Bagwell and Staiger (2014) point out, however, in the presence of SDT the fact that third-party spillovers from bilateral tariff bargaining are neutralized when those bargains abide by MFN and reciprocity now carries with it a more negative connotation: it implies that, by design, these SDT clauses *cannot* succeed at their intended purpose. This is because, as I described in the context of the three-country two-good general equilibrium model of chapter 4, when two (developed) countries engage in a bilateral tariff negotiation that abides by MFN and reciprocity while the third (developing) country sits it out, the third country gets nothing from their negotiations.

Indeed, a wide range of anecdotal and empirical evidence suggests that developing countries have in fact gained little from more than half a century of GATT/WTO-sponsored tariff negotiations. For example, Jawara and Kwa (2003, p. 269) conclude, based on interviews with WTO delegates and Secretariat staff members, as follows:

> "Developed countries are benefitting from the WTO, as are a handful of (mostly upper) middle-income countries. The rest, including the great majority of developing countries, are not. It is as simple as that."

In an implicit acknowledgement of this fact, the WTO's Doha Round is semi-officially known as the Doha Development Agenda, because a fundamental objective of the Round is to improve the trading prospects of developing countries. But as the declaration from the WTO Ministerial Conference in Doha, Qatar, November 14, 2001, states in part:

> "We agree that special and differential treatment for developing countries shall be an integral part of all elements of the negotiations... ."

Ironically, as Bagwell and Staiger (2014) observe, according to the terms-of-trade theory it is the GATT/WTO's embrace of SDT that explains the disappointing

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developing country experience with GATT/WTO membership to begin with; and this suggests that the Doha Round cannot succeed in one of its fundamental objectives under the current bargaining protocol that it has adopted.

Even if one accepts the diagnosis of the problem offered by the terms-of-trade theory, simply abandoning SDT at this point and bringing the developing and emerging market countries to the tariff bargaining table is unlikely to be sufficient to address the issue, and this is where the latecomers problem becomes relevant for the Doha Round: because they are "latecomers" to the bargaining table relative to the industrialized countries, developing and emerging market countries are unlikely to find industrialized-country bargaining partners that can reciprocate the substantial tariff cuts that they might have to offer.[67] This kind of asymmetry is at the heart of various diagnoses of the central sticking points at Doha, such as this diagnosis from The Economist (April 28, 2011):

> "...the real bone of contention is the aim of proposed cuts in tariffs on manufactured goods. America sees the Doha talks as its final opportunity to get fast-growing emerging economies like China and India to slash their duties on imports of such goods, which have been reduced in previous rounds but remain much higher than those in the rich world. It wants something approaching parity, at least in some sectors, because it reckons its own low tariffs leave it with few concessions to offer in future talks. But emerging markets insist that the Doha round was never intended to result in such harmonization. These positions are fundamentally at odds."

In some sense, then, the industrialized countries find themselves in a position in the Doha Round not unlike the position that the United States tried very hard to avoid in the context of sequential bilateral tariff bargaining under the 1934 RTAA as described in chapter 2: new potential bargaining partners have arrived, but due to previous tariff bargains with each other the industrialized countries have not preserved sufficient bargaining power to engage in a substantial way with these new potential partners. Mattoo and Staiger (2020) argue that the

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[67]If the eventual arrival of the developing and emerging economies had been anticipated by the industrialized countries at the time that the latter were engaged in tariff negotiations, then the findings of Bagwell and Staiger (2010b) on bilateral sequential tariff bargaining in a GATT/WTO-like bargaining forum as an efficient means of accommodating the arrival of new countries into the world trading system might apply. But it is the unanticipated arrival of the "latecomers" that makes achieving efficient tariff bargaining outcomes in the GATT/WTO framework more difficult.

latecomers problem and its implications for the preservation of tariff bargaining power in the WTO system may be helpful for interpreting recent United States trade actions as signifying a switch from "rules-based" to "power-based" tariff bargaining. I discuss some of these points in Staiger (2021, chapter 5), and I discuss Mattoo and Staiger more broadly in Staiger (2021, chapter 13). Here I focus on the possibility of making use of existing GATT/WTO flexibilities to address the latecomers problem within the rules-based system.

The essential idea is to find a way to give countries the negotiating flexibility so that they can transition toward the set of tariff commitments that the current WTO membership would have chosen to negotiate within the GATT negotiating forum had countries not been constrained in their negotiations by their pre-existing tariff bindings. This means providing countries with the flexibility to first escape from their existing GATT/WTO tariff bindings in an orderly way when necessary, in order that they can then engage in reciprocal MFN tariff bargaining with all willing WTO-member bargaining partners. As Bagwell and Staiger (2014) note, there are obvious dangers in encouraging such flexibility for this first step, and sufficient care would need to be taken to prevent uncontrolled unraveling of existing tariff commitments. That said, the flexibility needed for the first step is already provided in GATT via the Article XXVIII renegotiation provisions that I discussed in detail earlier in this chapter, while the flexibility for the second step is provided by the standard bilateral tariff bargaining protocols that have been employed in the various GATT rounds under Article XXVIII bis and that I described in chapter 4. So at least in principle, the WTO has the design features that would allow its member governments to address the latecomers problem. But a necessary ingredient for success would be to revisit the commitment to SDT made at the 2001 WTO Ministerial Conference in Doha.[68]

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[68] In note 64 I observed that a possible advantage of a shallow approach to integration is that it can facilitate a liability-rule approach to market access commitments that allows for flexibilities that would be difficult under deep integration. A related observation can be made here, namely, that it would be easier to address the latecomers problem and associated challenges created by a rising WTO membership and rising importance of developing and emerging economies within the membership when a shallow approach to integration is adopted than when deep integration is attempted. With shallow integration, in principle what is at issue are tariff renegotiations and further negotiations to adjust market access commitments for member governments in the face of a changing membership. With deep integration, the task would likely be much more complicated, including that of getting the increasing membership to agree on which deep commitments are acceptable.

6. Climate Change[69]

There is little doubt that crafting an effective policy response to the changes in global climate that are resulting from rising levels of atmospheric carbon will be a defining challenge for the twenty-first century. The existential threats to the planet from a failure to rise to this challenge are by now well documented.[70] The WTO and the world trading system that it governs will by necessity play a role in meeting this challenge. The only question is whether the WTO's role will be seen as obstructionist, or rather whether it can be accommodating to the world's attempts to solve the problem of climate change or even serve as an active contributor to the solution. For example, Mattoo and Subramanian (2014, p 91) describe the relationship between climate policy and trade policy in these terms:

> If countries cut emissions by different amounts, or impose carbon taxes at different levels, then carbon prices are likely to differ across countries. Countries with higher carbon prices may seek to impose additional border taxes on imports from countries with lower carbon prices in order to offset the competitive disadvantage to their firms and to prevent "leakage," an increase of carbon emissions in the form of increased production in countries with lower carbon prices.
>
> A key issue, therefore, is the scope for trade policy actions in any climate change agreement. ...

In effect, as Mattoo and Subramanian note, the kinds of carbon policies required to address global climate change are likely to have important trade effects and lead to policy disputes that the WTO may be called upon to adjudicate. And more recently, Nordhaus (2015) has called for the creation of a "Climate Club" in which member-countries agree to reduce their carbon emissions and nonparticipants are penalized with tariffs imposed on them by the club members.

In this chapter I discuss some of the key issues faced by the WTO in accommodating efforts to address climate change, and the constructive role that the WTO might play in addressing this challenge. To aid in this discussion, I develop a simple two-country partial equilibrium model of trade that features both a "trade problem" (associated with the terms-of-trade externality) and a "climate problem" (associated with a global non-pecuniary externality from carbon emissions)

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[69]This chapter draws on material from my 2018 Frank D. Graham Memorial Lecture.

[70]See, for example, Wallace-Wells (2019), or any of the recent Assessment Reports of the Intergovernmental Panel on Climate Change, available at https://www.ipcc.ch/reports/.

for the world to solve. The model is intentionally simplistic, as my emphasis is on broad themes rather than specific details.

I begin by considering how the GATT/WTO architecture can continue to work to address the trade problem in this setting. I then turn to the issue of carbon border adjustments, and ask what role such adjustments might play in maintaining the solution to the trade problem under the GATT/WTO architecture while accommodating implementation of the carbon taxes that would result from the successful negotiation of a global climate accord. Finally, I discuss a more active role that the WTO might play in addressing the challenge of climate change through a form of linkage between the WTO and the negotiated policy commitments of a climate accord.

6.1. Climate policy and trade agreements

How does the GATT/WTO architecture work when there is both a trade problem and a climate problem to solve? I now describe a simple model to provide answers that can illuminate a number of the dimensions to this question.

A benchmark trade-and-carbon model I consider a partial equilibrium two-country model of trade in a carbon-intensive good, which to fix ideas might be thought of as aluminum. I denote by c the reduction in per-capita welfare everywhere in the world from the carbon emitted by another unit of aluminum production in the home country; and similarly I denote by c^* the reduction in per-capita welfare everywhere in the world from the carbon emitted by another unit of aluminum production in the foreign country. The parameters $c > 0$ and $c^* > 0$ can be thought of as the carbon content of production in the home and the foreign country, measured in welfare (numeraire) units. If $c \neq c^*$, then the carbon content of production differs across home and foreign producers.[71]

The home (importing) country is populated by L citizens, and the home government can impose a production tax t on its producers and an import tariff τ; and similarly, the foreign (exporting) country is populated by L^* citizens, and the foreign government can impose a production tax t^* on its producers and an export tariff τ^*. All taxes/tariffs are expressed in specific terms, and negative taxes/tariffs

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[71]The assumption that carbon emissions impact the welfare of both countries uniformly is made for simplicity, so that I can focus on differences across countries in the carbon content of their production. But at the cost of more notation, it is straightforward to show that the results I emphasize below do not depend on this assumption.

correspond to subsidies. Notice that, given my assumptions, the home-country production tax t could equivalently be implemented as a carbon tax $\frac{t}{c}$ on home-country producers, while the foreign-country production tax t^* could equivalently be implemented as a carbon tax $\frac{t^*}{c^*}$ on foreign-country producers; and it could then be said that the home country "has a higher carbon price" than the foreign country when $\frac{t}{c} > \frac{t^*}{c^*}$. In what follows, I will for convenience characterize policies in terms of tariffs and production taxes, but I will sometimes also make reference to the carbon taxes implied by the production taxes.

Home producers face producer prices q and the upward-sloping home supply curve is $S(q)$, while home consumers face the consumer price p with $p = q + t$ and have downward sloping demand $D(p)$. The analogous prices and magnitudes in the foreign country are q^*, p^*, $S^*(q^*)$ and $D^*(p^*)$, with $p^* = q^* + t^*$. With strictly positive imports (which I assume is always the case), the arbitrage condition implies $p^* = p - \tau - \tau^*$, and the world price can be defined in standard fashion as $p^w \equiv p - \tau$ or, equivalently by the arbitrage condition, $p^w \equiv p^* + \tau^*$. Finally, with home imports defined by $M \equiv D - S$ and foreign exports defined by $E^* \equiv S^* - D^*$, the market clearing condition equating home imports to foreign exports,

$$D(p^w + \tau) - S(p^w + \tau - t) = S^*(p^w - \tau^* - t^*) - D^*(p^w - \tau^*),$$

defines the equilibrium world price as a function of policies, $\tilde{p}^w(\tau, t, \tau^*, t^*)$, from which each of the other equilibrium prices may then also be derived using the pricing relationships above:

$$\begin{aligned}
\tilde{p}(\tau + \tau^*, t, t^*) &\equiv \tilde{p}^w(\tau, t, \tau^*, t^*) + \tau & (6.1) \\
\tilde{q}(\tau + \tau^*, t, t^*) &\equiv \tilde{p}^w(\tau, t, \tau^*, t^*) + \tau - t \\
\tilde{p}^*(\tau + \tau^*, t, t^*) &\equiv \tilde{p}^w(\tau, t, \tau^*, t^*) - \tau^* \\
\tilde{q}^*(\tau + \tau^*, t, t^*) &\equiv \tilde{p}^w(\tau, t, \tau^*, t^*) - \tau^* - t^*.
\end{aligned}$$

The world price depends on the levels of each of the tariffs τ and τ^* (as well as each of the production taxes t and t^*), but reflected in (6.1) is the now-familiar property that only the sum of the tariffs $\tau + \tau^*$ enters into the home and foreign consumer and producer prices (in addition to t and t^*).

I define welfare in the home country W as a weighted sum of consumer surplus (CS), producer surplus (PS) and net tax revenue ($REV \equiv \tau M + tS$) minus the welfare cost of world carbon emissions on home citizens ($L \times [cS + c^*S^*]$), with a

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weight $\zeta \geq 1$ placed on home producer surplus,

$$
\begin{aligned}
W &= W(\tilde{p}(\tau + \tau^*, t, t^*), \tilde{q}(\tau + \tau^*, t, t^*), \tilde{q}^*(\tau + \tau^*, t, t^*), \tilde{p}^w(\tau, t, \tau^*, t^*)) \\
&\equiv CS(\tilde{p}(\tau + \tau^*, t, t^*)) + \zeta \times PS(\tilde{q}(\tau + \tau^*, t, t^*)) \\
&\quad + REV(\tilde{p}(\tau + \tau^*, t, t^*), \tilde{q}(\tau + \tau^*, t, t^*), \tilde{p}^w(\tau, t, \tau^*, t^*)) \\
&\quad - L \times [cS(\tilde{q}(\tau + \tau^*, t, t^*)) + c^*S^*(\tilde{q}^*(\tau + \tau^*, t, t^*))],
\end{aligned} \tag{6.2}
$$

and with an analogous definition of foreign-country welfare W^*,

$$
\begin{aligned}
W^* &= W^*(\tilde{p}^*(\tau + \tau^*, t, t^*), \tilde{q}^*(\tau + \tau^*, t, t^*), \tilde{q}(\tau + \tau^*, t, t^*), \tilde{p}^w(\tau, t, \tau^*, t^*)) \\
&\equiv CS^*(\tilde{p}^*(\tau + \tau^*, t, t^*)) + \zeta^* \times PS^*(\tilde{q}^*(\tau + \tau^*, t, t^*)) \\
&\quad + REV^*(\tilde{p}^*(\tau + \tau^*, t, t^*), \tilde{q}^*(\tau + \tau^*, t, t^*), \tilde{p}^w(\tau, t, \tau^*, t^*)) \\
&\quad - L^* \times [cS(\tilde{q}(\tau + \tau^*, t, t^*)) + c^*S^*(\tilde{q}^*(\tau + \tau^*, t, t^*))].
\end{aligned} \tag{6.3}
$$

The producer price of each country's trading partner enters the country's welfare function as a result of the world-wide carbon (non-pecuniary) externality reflected in $c > 0$ and $c^* > 0$. The weights on producer surplus ζ and ζ^* are meant to capture both distributional/political economy concerns associated with the production of carbon-intensive goods, as well as possible development opportunities not captured by the model that relate to the use of carbon-intensive technologies and may differ across countries in light of different stages of development (see, e.g., Mattoo and Subramanian, 2014). As will become clear just below, it is these considerations that account for the possibility that efficient carbon taxes in this setting need not be uniform across countries as they would be under the classic Samuelson (1954) public goods optimality condition (see, e.g., Weizman, 2014).

Nash inefficiencies in a world of trade and climate problems   I define efficient policies as those that maximize the sum of home and foreign ("world") welfare.[72] Straightforward calculations confirm that the efficient tariffs τ^e and τ^{*e} and production taxes t^e and t^{*e} in this setting are characterized by the following conditions:

$$
\tau^e + \tau^{*e} = 0 \tag{6.4}
$$

$$
t^e = -(\zeta - 1)\frac{q^e}{\eta^{S^e}} + (L + L^*)c; \quad t^{*e} = -(\zeta^* - 1)\frac{q^{*e}}{\eta^{S^{*e}}} + (L + L^*)c^*,
$$

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[72]I am thereby implicitly assuming here that lump sum transfers are available to distribute surplus across the two countries as desired.

where η^S is the producer-price elasticity of supply in the home country and η^{S*} is the producer-price elasticity of supply in the foreign country, and where a superscript e denotes evaluation of the magnitude at efficient policies. As expected, the first line of (6.4) confirms that there is no efficiency role for tariffs, and that only their sum is relevant for determining efficiency. The second line shows that, when the weights ζ and ζ^* on producer surplus are both equal to one, the efficient carbon taxes ($\frac{t^e}{c}$ for the home country, $\frac{t^{*e}}{c^*}$ for the foreign country) will be uniform across countries and set at the Pigouvian level $(L + L^*)$ that internalizes the world-wide carbon externality; but if there are distributional/development concerns associated with carbon-intensive production so that these weights are greater than one, then there is an offsetting force that pushes toward subsidizing production and that is inversely related to the elasticity of supply.

Turning to non-cooperative policies, the first-order conditions that define the best-response tariff and production tax policies for the home and foreign governments can be manipulated to yield the following characterization of Nash policies:

$$
\tau^N = \left[\frac{S^{*N} \times \frac{\eta^{S^{*N}}}{q^{*N}}}{E^{*N} \times \frac{\eta^{E^{*N}}}{\tilde{p}^{wN}}} \right] \times Lc^* + \frac{\tilde{p}^{wN}}{\eta^{E^{*N}}}; \quad \tau^{*N} = -\left[\frac{S^N \times \frac{\eta^{S^N}}{q^N}}{M^N \times \frac{\eta^{M^N}}{\tilde{p}^{wN}}} \right] \times L^*c + \frac{\tilde{p}^{wN}}{\eta^{M^N}}
$$

$$(6.5)$$

$$
t^N = -(\zeta - 1)\frac{q^N}{\eta^{S^N}} + Lc; \qquad t^{*N} = -(\zeta^* - 1)\frac{q^{*N}}{\eta^{S^{*N}}} + L^*c^*,
$$

where η^M is the world-price elasticity of home-country import demand (defined positively) and η^{E^*} is the world-price elasticity of foreign-country export supply, and where a superscript N denotes evaluation of the magnitude at Nash policies. As the second line of (6.5) implies, in the Nash equilibrium each country ignores the impact of its carbon emissions on the welfare of the other country's citizens when choosing its production tax (that is, the home country ignores L^*c when choosing its production tax, and the foreign country ignores Lc^*). And as a comparison with the second line of (6.4) reveals, this tends to make each country's Nash production taxes too low and its carbon emissions too high relative to efficient levels. The expressions in the first lines of (6.5) then reveal that the Nash tariffs deviate from zero for two reasons: the first term in each expression compensates for the fact that the trading partner's production tax is too low, and employs the tariff as an instrument to reduce the trading partner's production and hence carbon emissions, modulated by the relevant elasticities; and the

second terms in each expression correspond to the familiar Johnson (1953-54) terms-of-trade-manipulation motive.

To understand further the nature of the tariff inefficiencies in the Nash equilibrium, it is illuminating to consider the tariffs that would be efficient conditional on the level of the Nash production taxes, t^N and t^{*N}, characterized in (6.5). Recalling that only the sum of tariffs is relevant for efficiency (i.e., world welfare) considerations, the tariffs that maximize world welfare conditional on the level of the Nash production taxes characterized in (6.5) satisfy

$$\tau^e(t^N, t^{*N}) + \tau^{*e}(t^N, t^{*N}) = \left[\frac{S^* \times \frac{\eta^{S^*}}{q^*}}{E^* \times \frac{\eta^{E^*}}{\tilde{p}^w}} \right] \times Lc^* - \left[\frac{S \times \frac{\eta^S}{q}}{M \times \frac{\eta^M}{\tilde{p}^w}} \right] \times L^*c, \quad (6.6)$$

where all magnitudes on the right-hand side of (6.6) are evaluated at the Nash production taxes t^N and t^{*N} and the tariffs $\tau^e(t^N, t^{*N})$ and $\tau^{*e}(t^N, t^{*N})$. Notice that, according to (6.6), $\tau^e(t^N, t^{*N}) + \tau^{*e}(t^N, t^{*N})$ could be either positive (a net tax on trade) or negative (a net subsidy to trade).

Comparing (6.6) to the sum of the Nash tariffs characterized in the first line of (6.5), what is missing from $\tau^e(t^N, t^{*N}) + \tau^{*e}(t^N, t^{*N})$ is the second term in each Nash tariff expression, namely, the terms-of-trade-manipulation motive that makes each country's Nash tariff higher than it would otherwise be. Evidently, the first term in each of the Nash tariff expressions, which reflects the attempt of each country to use its tariff to compensate for the inefficiently low production tax of its trading partner, remains present for the efficient use of tariffs conditional on Nash production taxes. Intuitively, as the expression on the right-hand side of (6.6) reflects, controlling for the relevant elasticity considerations it is efficient to use tariffs to shift carbon-intensive production to the country whose Nash production taxes are closest to the efficient level, which according to the second lines in (6.4) and (6.5) will be the home country when $L^*c < Lc^*$ (and therefore a net tax on trade) and the foreign country (and therefore a net subsidy to trade) otherwise.[73]

The upshot is that the nature of the Nash inefficiencies in the absence of trade and climate agreements can be described in simple terms. Carbon taxes

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[73]It is interesting to note that the efficient use of tariffs in this case does not necessarily shift carbon-intensive production to the country with the highest Nash carbon tax. That will be true if the weights ζ and ζ^* are both equal to one, but otherwise not necessarily so. For example, as (6.6) indicates, the sum of the efficient tariffs could be negative and therefore shift carbon-intensive production toward the foreign country if L^*c is sufficiently large as compared to Lc^*, and yet the second line of (6.5) implies that the foreign country could have a lower Nash carbon tax than the home country if ζ^* is sufficiently large as compared to ζ.

are too low, reflecting the presence of an international non-pecuniary externality (a climate problem). And conditional on Nash carbon taxes, tariffs are too high, reflecting the presence of an international pecuniary externality (a trade problem).

A shallow integration approach to the trade problem   To see whether GATT's shallow-integration approach could still solve the trade problem in a world where, as depicted above, the trade problem coexists with the climate problem, I begin from the Nash tariffs and production taxes characterized in (6.5) and suppose that countries negotiate over tariffs, with the understanding that (i) if either country subsequently makes a unilateral policy adjustment that has the effect of withdrawing market access, then its trading partner will withdraw equivalent market access in a reciprocal fashion, but that (ii) unilateral policy adjustments that leave market access unchanged will trigger no response from the trading partner. Recalling from chapter 4 (see also note 40) that a reciprocal withdrawal of market access will hold fixed the terms of trade $\tilde{p}^w$ between the home and foreign country and that unilateral policy adjustments that leave market access unchanged will hold fixed $\tilde{p}^w$ as well, the unilateral policy options open to each country subsequent to their tariff negotiations amount to policy adjustments that may or may not decrease the level of market access implied by their tariff commitments but that in any case do not alter the terms of trade $\tilde{p}^w$.[74] In effect, the understanding in (i) can be thought of as reflecting in a shorthand way the reciprocity provisions of GATT Article XXVIII discussed in previous chapters, while the understanding in (ii) can be thought of as reflecting GATT's "market access preservation rules."

Can tariff negotiations solve the trade problem under this representation of GATT's shallow integration approach? As I now demonstrate, the answer is "Yes." To see this, suppose that in their tariff negotiations the home and foreign countries agree to the tariff levels $\bar{\tau}$ and $\bar{\tau}^*$, respectively, defined by

$$
\bar{\tau} = \left[\frac{S^* \times \frac{\eta^{S^*}}{q^*}}{E^* \times \frac{\eta^{E^*}}{\tilde{p}^w}} \right] \times Lc^*; \quad \bar{\tau}^* = - \left[\frac{S \times \frac{\eta^S}{q}}{M \times \frac{\eta^M}{\tilde{p}^w}} \right] \times L^*c, \tag{6.7}
$$

where all magnitudes on the right-hand side of (6.7) are evaluated at the Nash carbon taxes t^N and t^{*N} and the tariffs $\bar{\tau}$ and $\bar{\tau}^*$. Notice from (6.7) that the home country is agreeing to an import tariff while the foreign country is agreeing to an

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[74]On the formal relationship between reciprocity and terms-of-trade movements in a partial equilibrium setting such as the one I describe here, see Bagwell and Staiger (2001a, note 19).

export subsidy. And notice from (6.6) and the definitions of $\bar{\tau}$ and $\bar{\tau}^*$ in (6.7) that $\bar{\tau} + \bar{\tau}^* = \tau^e(t^N, t^{*N}) + \tau^{*e}(t^N, t^{*N})$, implying that the two countries have agreed to tariffs that are efficient given Nash production taxes. The question is then whether subsequent to the negotiations the tariffs will remain at the levels $\bar{\tau}$ and $\bar{\tau}^*$ and the production taxes at the levels t^N and t^{*N} under GATT's shallow integration rules as I have modeled them. If so, then we may conclude that GATT's shallow integration approach can solve the trade problem, leaving the climate problem unaffected (and presumably to be solved by other means).[75]

Consider first the policy options described in (i) above. Focusing on the home country, it is direct to confirm using (6.2) that, evaluated at the Nash production taxes t^N and t^{*N} and the tariffs $\bar{\tau}$ and $\bar{\tau}^*$,

$$\frac{dW}{d\tau} + \frac{dW}{d\tau^*}\frac{d\tau^*}{d\tau}|_{d\widetilde{p}^w=0} = 0,$$

implying that the home country can do no better than to select $\bar{\tau}$ in light of the reciprocal response from the foreign country that an increase in its tariff would trigger. And again evaluated at the Nash production taxes t^N and t^{*N} and the tariffs $\bar{\tau}$ and $\bar{\tau}^*$, it is also straightforward to confirm that

$$\frac{dW}{dt} + \frac{dW}{d\tau^*}\frac{d\tau^*}{dt}|_{d\widetilde{p}^w=0} = 0,$$

implying that the home country can do no better than to select t^N in light of the reciprocal response from the foreign country that a decrease in its production tax would trigger. Finally, consider the policy options described in (ii) above. Evaluated at the Nash production taxes t^N and t^{*N} and the tariffs $\bar{\tau}$ and $\bar{\tau}^*$, it follows that

$$\frac{dW}{dt} + \frac{dW}{d\tau}\frac{d\tau}{dt}|_{d\widetilde{p}^w=0} = 0,$$

implying that there is no mix of policies that the home country would prefer over $\bar{\tau}$ and t^N that could deliver its negotiated level of market access. Completely analogous statements can be shown to hold for the foreign country using (6.3).

Hence, GATT's shallow-integration approach can solve the trade problem in a world where that problem coexists with the climate problem. And what is

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[75]In saying that the climate problem will be left "unaffected," I simply mean that it will still be the case that carbon taxes are too low, reflecting the presence of an international non-pecuniary externality (a climate problem), with no new (e.g., terms-of-trade manipulation) sources of policy distortions in carbon taxes.

left is a climate problem, where carbon taxes are inefficiently low, but where the inefficiency is due only to an international non-pecuniary externality.

6.2. Carbon border adjustments

Suppose that countries are able to find a way to negotiate an enforceable climate accord and implement the increase in production (carbon) taxes that would be needed to move from the Nash production taxes characterized in the second line of (6.5) to the efficient production taxes characterized in the second line of (6.4). Can GATT's shallow approach to integration accommodate the implementation of the climate accord and maintain its solution to the trade problem, so that with the climate accord in place the world then reaches the efficiency frontier?

I now show that this is indeed possible, but only if the home-country tariff is allowed to rise with its higher carbon tax, from its initial level $\bar{\tau}$ defined in (6.7) to the new higher level

$$\hat{\tau} = \left[\frac{S^* \times \frac{\eta^{S^*}}{q^*}}{E^* \times \frac{\eta^{E^*}}{\tilde{p}^w}} \right] \times Lc^* + \left[\frac{S \times \frac{\eta^S}{q}}{M \times \frac{\eta^M}{\tilde{p}^w}} \right] \times L^*c, \qquad (6.8)$$

and similarly the foreign-country export subsidy is allowed to rise with its higher carbon tax, from its initial level $\bar{\tau}^*$ defined in (6.7) to the new higher level

$$\hat{\tau}^* = - \left[\frac{S \times \frac{\eta^S}{q}}{M \times \frac{\eta^M}{\tilde{p}^w}} \right] \times L^*c - \left[\frac{S^* \times \frac{\eta^{S^*}}{q^*}}{E^* \times \frac{\eta^{E^*}}{\tilde{p}^w}} \right] \times Lc^*, \qquad (6.9)$$

where all right-hand-side magnitudes in (6.8) and (6.9) are evaluated at the tariffs $\hat{\tau}$ and $\hat{\tau}^*$ and the efficient production taxes t^e and t^{*e}. Notice from (6.8) and (6.9) that $\hat{\tau} + \hat{\tau}^* = 0$ and hence, in combination with the efficient production taxes t^e and t^{*e}, the tariff adjustments that I have just described, which I will refer to as "carbon border adjustments," will allow countries to reach the efficiency frontier as characterized in (6.4).

Assuming that these carbon border adjustments are allowed, so that the home country can increase its import tariff from $\bar{\tau}$ to $\hat{\tau}$ and the foreign country can increase its export subsidy from $\bar{\tau}^*$ to $\hat{\tau}^*$, the remaining question is, again, whether the tariffs will then remain at the levels $\hat{\tau}$ and $\hat{\tau}^*$ under GATT's shallow integration rules as I have modeled them, given that the production taxes are pinned down by the climate accord at the levels t^e and t^{*e}. But it is direct to show that this is

indeed the case. Focusing again on the home country, and evaluated at the tariffs $\hat{\tau}$ and $\hat{\tau}^*$ and the efficient production taxes t^e and t^{*e}, it can be checked that

$$\frac{dW}{d\tau} + \frac{dW}{d\tau^*}\frac{d\tau^*}{d\tau}|_{d\widetilde{p}^w=0} = 0,$$

implying that the home country can do no better than to select $\hat{\tau}$ in light of the reciprocal response from the foreign country that an increase in its tariff beyond $\hat{\tau}$ would trigger. An analogous statement holds for the foreign country.

The carbon border adjustments that I have characterized above have some interesting properties. They describe an increase in the home-country import tariff that is to occur as the home country raises its carbon tax, and an increase in the foreign-country export subsidy that is to occur as the foreign country raises its carbon tax. These carbon border adjustments therefore work to offset competitive effects that the implementation of higher carbon taxes would otherwise create for each country. In this sense they resonate with the purpose of proposed carbon border adjustments as seen from the perspective of the policy debate, namely as a mechanism for addressing possible trade competitiveness impacts and "carbon leakage" concerns that arise when a country considers implementing more stringent carbon policies and that were highlighted in the passage from Mattoo and Subramanian (2014) that I quoted at the beginning of this chapter.[76]

However, there is also a crucial difference: unlike the carbon border adjustments typically considered in the policy debate, which envision tariffs that would discriminate across the sources of imports based on measures of the carbon content of those imports (see, for example, Bordoff, 2008, Mattoo and Subramanian, 2014, and Jensen, 2020), the carbon border adjustments described by (6.8) and (6.9) – which imply changes in tariffs relative to $\bar{\tau}$ and $\bar{\tau}^*$ only because the second terms in these expressions are non-zero – do *not* depend on the carbon content of the production of one's trading partner (as captured by c^* from the perspective of the home country and by c from the perspective of the foreign country). This is because these carbon border adjustments are designed to moderate the market access implication of a country's own increase in carbon/production taxes, and to bring to an efficient level the market access that the country provides its trading partner as it raises its carbon tax to the efficient level. And while the market access implication of a country's carbon tax increase does reflect the carbon content

of the country's *own* production (because this enters into the determination of the size of the country's carbon tax increase), that implication has nothing to do with the carbon content of production in a country's trading partners.

Indeed, as the second terms in (6.8) and (6.9) indicate, neither the carbon content of a trading partner's production nor, aside from its impact on the world price $\tilde{p}^w$, the level of the trading partner's carbon tax, is relevant for the carbon border adjustments that the model would support. In fact, in this light it is easy to see that in a multi-country version of the model, the implied carbon border adjustments would be non-discriminatory (i.e., they would comply with the MFN principle). These properties can help avoid a number of practical problems often associated with the implementation of carbon border adjustments as those border adjustments are typically envisioned in the policy debate (see, for example, the discussion in World Bank, 2021, pp 41-43).

It is instructive at this point to consider the related discussion of Mattoo and Subramanian (2014, p 24). They summarize the current state of the policy disagreements over carbon border adjustments, and possible solutions, this way:

> The question is whether such [carbon border] taxes can be designed in a way that addresses industrial countries' concerns regarding competitiveness while limiting the trade costs for developing countries. What has to be avoided is the imposition of tariffs applied across-the-board on the basis of the carbon content of imports, which would be a "nuclear option" in terms of trade consequences. For example, such an action by the United States and the EU would be the equivalent of imposing a tariff of over 20 percent on China and India, resulting in lost exports of about 20 percent.
>
> We see two possible solutions. One would be across-the-board tariffs and rebates for exporters based on the carbon content in domestic production. These would almost completely offset the adverse effects on U.S. output and exports of energy-intensive manufactures, while limiting declines in China's and India's manufacturing exports to about 2 percent.
>
> Another possibility would be tariffs based on the carbon content of imports but applied only to a narrow set of carbon-intensive products. These would dampen the adverse effect of emissions reductions on U.S. output and exports of energy-intensive manufactures, which would decline by only about 0.5 percent and 7 percent, respectively, while limiting declines in China's and India's manufacturing exports to about 3 percent. But this option would be tougher to implement because it would require informa-

tion on foreign countries' carbon content and hence would be more prone
to abuse by protectionists.

The findings above cast doubt on the logical basis for the "nuclear option" that
Mattoo and Subramanian say must be avoided, and lend support instead to the
first of the two possible preferred solutions that they described.

More generally, the discussion above points to an important insight: while the
Nash tariffs in (6.5) are responsive to the carbon content of a trading partner's
production, there is no reason for the *efficient* tariffs as characterized in (6.6) to
be based on the carbon content of a trading partner's production, and this is true
even in a world where cooperation over climate policy is impossible. The reason is
that efficiency only pins down the sum of the tariffs between the home and foreign
country, and so to achieve the efficient sum of tariffs in (6.6) each country's tariff
can be set at the level that reflects the carbon content of its *own* production. This
insight also extends to a multi-country version of the model (because in such a
world it is the sum of the tariffs along any bilateral trade path that are relevant
for efficiency), and it implies that the role for discriminatory tariffs as a response
to non-cooperative carbon policies is confined to non-cooperative trade policy: if
international cooperation over tariffs (and export subsidies) is possible, then the
existence of a climate problem as that problem is formalized here is not a reason
to abandon the MFN principle, even when attempts to cooperate over climate
policy have failed.

6.3. Negotiation linkage

Thus far I have assumed either that there is no cooperation over climate policy or
that a stand-alone climate accord is implemented, and I have considered how the
GATT/WTO architecture might work in each of those circumstances. I now turn
to a different question, the question of linkage between a climate accord and a trade
agreement such as the WTO. Maggi (2016) defines three kinds of possible linkage
between agreements: enforcement linkage, negotiation linkage and participation
linkage. While each of these kinds of linkage is relevant for consideration in the
specific context of trade and climate agreements, I focus here on the possibility
of a form of negotiation linkage, where a negotiation over tariff liberalization and
carbon taxes is linked through the market access implications of each.

My starting point is the latecomers problem characterized by Bagwell and
Staiger (2014) and described in chapter 5. Recall that this problem refers to

the asymmetry in the level of market access commitments between the developing/emerging economies on the one hand, and industrialized countries on the other, an asymmetry that has emerged after decades of reciprocal tariff negotiations among industrialized countries, with the developing and emerging economies largely sitting on the sidelines as a result of exemptions to the reciprocity norm that were granted to these countries and codified in special and differential treatment clauses. This asymmetry is at the heart of various diagnoses of the central sticking points at Doha. In essence, industrialized countries want emerging and developing countries to agree to tariff cuts in the Doha Round, but have few tariff cuts of their own to put on the table in return.
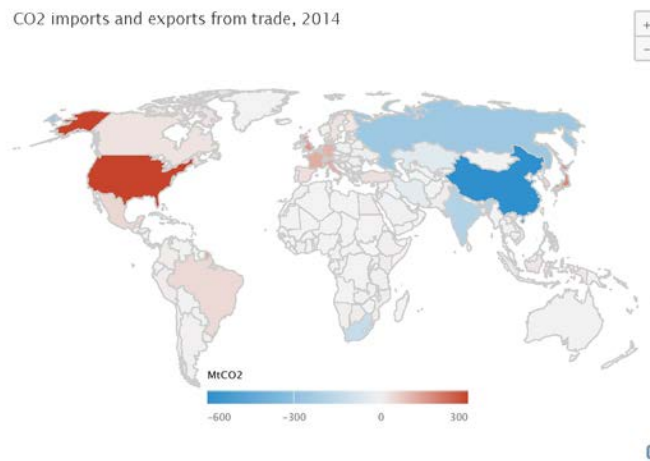
At the same time, a key sticking point in negotiating meaningful climate accords is the strong asymmetry in the positions of emerging and developing countries on the one hand, and industrialized countries on the other, regarding the desired response to climate change. Emerging and developing countries want industrialized countries to agree to bear the brunt of addressing climate change, by for example imposing high carbon taxes on their producers, but emerging and developing countries have little leverage to induce industrialized countries to do this (Mattoo and Subramanian, 2014). And where industrialized countries are considering carbon taxes on their own, they see new carbon customs duties (carbon border adjustments) as a way to offset the trade competitiveness effects of carbon taxes on their firms and prevent carbon leakage (Jensen, 2020).

The point I wish to emphasize is that these two asymmetries, one regarding tariffs and the other regarding carbon taxes, have market access implications that are in broad terms mirror images of each other. This is illustrated in Figures 10.1 and 10.2. Figure 10.1, which is reproduced from the WTO web page and depicts the simple average of MFN bound tariffs by country with deeper red corresponding to higher average tariffs, illustrates the first asymmetry. Developing and emerging economy tariffs are still high (deeper red), while the tariffs of industrialized countries are already low (lighter red) and leave little room for further cuts. Figure 10.2, which is reproduced from Carbon Brief (2017) and where deeper red (blue) means higher carbon content of net imports (exports), illustrates the second asymmetry. For countries where average bound MFN tariffs are low in Figure 10.1 (i.e., the industrialized countries), Figure 10.2 suggests that the carbon content of net import is high (deeper red) implying that the new carbon customs duties that would likely accompany the imposition of carbon taxes by the industrialized countries would also be high. Moreover, Figure 10.2 suggests that it is many of the large emerging and developing countries whose exports have

the highest carbon content (deeper blue) and who would therefore likely bear the brunt of these new carbon customs duties and have the greatest interest in seeing them removed, and these are countries that Figure 10.1 indicates have the highest average bound MFN tariffs of their own.

Figure 10.1: MFN Bound Tariffs

Figure 10.2: Carbon Content of Net Imports

It is these asymmetries that might be combined into a viable, linked market access negotiation.[77] In particular, what is suggested by this discussion is the possibility of combining into a single, reciprocal package of negotiations the market access consequences of unilateral industrialized country carbon taxes – *without* border carbon adjustments – and the unilateral tariff cuts of emerging/developing economies. In effect, in such negotiations the emerging and developing countries would offer reciprocal tariff cuts in exchange for the market access consequences of carbon taxes offered by the industrialized countries.

How might this linkage be operationalized? A natural possibility within the existing GATT/WTO structure (but in the absence of SDT) would be to follow a three-step procedure. In a first step, industrialized countries (and possibly China, without whom a climate accord would likely fall short) would agree on an aggressive package of carbon mitigation policies (e.g., carbon taxes). Then, in a second step, these countries would initiate GATT Article XXVIII renegotiations with their trading partners, and in the context of these renegotiations introduce new MFN carbon customs duties on top of their existing tariff bindings, calibrated to offset the trade competitiveness (i.e., market access) effects of their new carbon policies, while offering their new carbon policies as compensation for their carbon customs duties.[78] And finally, in a third step, WTO members would engage in a round of reciprocal tariff negotiations in the context of GATT Article XXVIII bis, with cuts in (and possibly elimination of) the new carbon customs duties of the industrialized countries now on the table and to be exchanged for reciprocal tariff cuts from emerging and developing countries. Upon completion of this third step, the entire package of negotiated carbon taxes and negotiated tariff bindings would

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[77]As described in Carbon Brief (2017), the calculations of the carbon content of imports and exports that underpin Figure 10.2 make use of the carbon content of production in each country, and hence use a different methodology than the methodology that would be relevant for calculating the carbon customs duties according to the logic that I have described in this chapter. Hence, Figure 10.2 should be interpreted only as suggestive in a broad and schematic way of the likely geographic patterns of carbon customs duties that I am describing here.

[78]Paragraph 2 of GATT's Article XXVIII renegotiation clause states:

> In such negotiations and agreement, which may include provision for compensatory adjustment with respect to other products, the contracting parties concerned shall endeavour to maintain a general level of reciprocal and mutually advantageous concessions not less favourable to trade than that provided for in this Agreement prior to such negotiations.

The offering of new carbon policies that offset the market access consequences of the new MFN carbon customs duties that I describe in the text would be consistent with this stipulation.

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be implemented. In the end, if the new carbon customs duties were eliminated as a result of the third-step negotiations, the emerging and developing countries would have offered tariff cuts to industrialized countries (and possibly China) in exchange for the reciprocal market access consequences of the carbon taxes imposed by these countries.[79]

A number of features of this linkage possibility are notable. First, the new carbon customs duties would be *MFN*, because they are designed simply to neutralize the market access effects of a country's new carbon taxes. This is therefore what I would call a case of *indirect* linkage between climate and trade negotiations, because it links the market access consequences of new carbon taxes with the market access consequences of tariff cuts, combining the market access implications of each into a reciprocal package. And in particular, from the WTO's perspective, while this linkage could help to provide the balance across industrialized and emerging/developing countries needed to unlock the Doha Round, it does not introduce issues beyond the market access consequences of policy that are in any event the WTO's central concern.

Second, there is an interesting political economy dimension: through this linkage, industrialized country export interests would be harnessed to push for carbon taxes, with the knowledge that carbon taxes would be accompanied by carbon customs duties, and that reductions in the latter could then be offered as bargaining chips to open foreign markets in GATT/WTO negotiating rounds. In making the political environment potentially more favorable to carbon taxes in this way, the linkage could help industrialized countries achieve more aggressive climate commitments.

And third, international commitments on climate policy would gain a potent enforcement mechanism. If an industrialized country (or China) did not follow through on its climate commitments, then from the WTO's perspective the country would be violating its market access commitments, and emerging and developing countries could then seek authorization from the WTO dispute settlement

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[79]Notice that I am assuming that the border carbon adjustments at issue would play the role of neutralizing the trade effects of carbon taxes, much as border tax adjustments neutralize the trade effects of destination-based value added taxes (VAT) such as those imposed by the EU (see Lockwood and Whalley, 2010, for a discussion of the connections across these two policy issues). I am then suggesting that industrialized countries could offer to reduce these border carbon adjustments in market access negotiations with emerging and developing economies precisely for the market access/trade implications that the carbon taxes without the border tax adjustments would have.

bodies to reciprocally raise their tariffs.[80]

In this way, under the linkage possibility I have considered here the market access consequences of carbon taxes would be transformed from a bug into a feature. Instead of simply responding to these consequences with border carbon adjustments, industrialized countries could use the market access consequences of carbon taxes as the engine of enforceable negotiated commitments on carbon policies and unfinished Doha Round tariff cuts.

What about carbon leakage, the increase in carbon emissions that could arise from increased production elsewhere in the world if the countries that impose stringent carbon policies lose international competitiveness in their carbon-intensive sectors? This is a potential concern, because under the three-step procedure I have described above the new carbon customs duties (carbon border adjustments) that are meant to prevent carbon leakage when an industrialized country introduces new carbon taxes would be largely or even completely bargained away.

One approach to addressing this concern would be to link the reciprocal tariff negotiations in the third step of the procedure described above with the transfer of clean technology. For example, Mattoo and Subramanian (2014) propose that an international fund might be set up to finance the transfer of "green" technologies to emerging and developing countries (see also the related discussion in World Bank, 2021, p 17). The new access to industrialized country markets that would arise from the described reciprocal tariff negotiations might be conditioned on the adoption by emerging and developing country exporters of these green technologies. Or the desired technology transfer might be accomplished via foreign direct investment (FDI) from industrialized countries to the emerging and developing countries, with emerging and developing countries agreeing to make liberalizing FDI commitments where needed as part of the third-step negotiations.

Another approach to addressing this concern, possibly complementary to the first approach, would build on the ability of bilateral tariff negotiations to minimize third-party trade effects when those negotiations conform to MFN and reciprocity as described in chapter 4. Under this approach, industrialized countries would seek out as bilateral tariff bargaining partners in the third-step market access negotiations, not the principal suppliers of the products whose new carbon customs duties are on the bargaining table, but rather those emerging and developing countries with the cleanest technologies already in place for producing those products. As

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[80]Whether such reciprocal responses would be sufficient by themselves to enforce efficient carbon policies is an open question, but at a minimum they could form part of an effective enforcement mechanism for international climate commitments.

in the chapter 2 discussion of tariff bargaining techniques used by the United States in the context of the 1934 RTAA, judicious use of tariff reclassifications might also be made to further guide the grant of industrial-country market access toward clean-technology suppliers in the emerging and developing countries; and split concessions could be used to hold in reserve some tariff reductions for later adopters of green technology once they have adopted those technologies. This would have the added benefit of incentivizing emerging and developing countries to invest in green technologies.

7. Conclusion

I have argued that the world trading system of the twentieth century can be adapted to address the challenges of the twenty-first century. I have constructed this argument in two steps, first, by developing an understanding of why GATT worked and the economic environment it is best suited for, and second, by evaluating according to this understanding whether the changes in the economic environment that have occurred in recent decades imply the need for changes in the design of the GATT/WTO. I have argued that the terms-of-trade theory of trade agreements provides a compelling framework for understanding the success of GATT in the twentieth century, and I have argued (selectively here, more thoroughly in Staiger, 2021) that according to this understanding the logic of GATT's design features transcend many, though not all, of the current challenges faced by the WTO. It is from this perspective that one could say, as I wrote in the Introduction, that rather than adopting an approach to the creation of an effective world trading system for the twenty-first century that follows that mantra "Move fast and break things," it may be possible to simply Keep Calm and Carry On.

I am not claiming that reforms to the world trading system are not needed, or that all is well at the WTO. But I am claiming that the broad architecture of the GATT/WTO – and of the GATT, in particular – is well-suited as a basis for the design of the world trading system of the twenty-first century.

Even if the logic of my argument is accepted, there is still the question: How could the designers of GATT have gotten it so right? Two observations can help to answer this question. First, as I described in chapter 2, the designers of GATT did not build GATT from scratch. Rather, GATT was modeled on the US Reciprocal Trade Agreements Act, whose design in turn benefited from decades of experimentation with various trade agreement designs both in the United States and Europe. So the designers of GATT were very much standing on the shoulders

of those before them, and were beneficiaries of a trial-and-error learning process that had been going on for decades.

A second observation may also help explain how the designers of GATT could have gotten it so right. GATT was born in the aftermath of World War II when the world economy was in a period of deep crisis, and some of the best economic minds of the day, including James Meade and John Maynard Keynes, were recruited to help in its design. Meade in particular was a member of the British delegation to the London and Geneva conferences in 1946 and 1947 which produced the charter for the International Trade Organization and GATT, and along with Keynes, Meade was widely regarded as a central figure in these conferences (see for example Penrose, 1953, pp. 89-90). And so economics clearly held a position of prominence in shaping the design decisions that led to GATT, arguably far more than would have been the case if GATT had been designed under less exceptional circumstances.[81]

Of course, this begs the question of whether these economists emphasized the terms-of-trade externality associated with commercial policy that lies at the heart of the terms-of-trade theory of trade agreements. But as Bagwell and Staiger (2016) have observed, the *Haberler Report*, commissioned by GATT and written by a Panel of Experts composed of Roberto de Oliveira Campos, Gottfried Haberler, James Meade and Jan Tinbergen, suggests an affirmative answer to this question.

Writing on the topic of commercial policy in the 1950's and the agricultural protectionism of industrialized countries during that period, the Haberler Report does indeed emphasize terms-of-trade externalities, expressed in a multi-country setting along the lines that I have sketched in chapter 4:

> The problem of the interests of different primary producing countries outside industrialized Western Europe and North America is ... not only a question which of the other countries would gain by a moderation of agricultural protectionism in these two great industrialized regions; there are undoubtedly cases in which an increase in agricultural protectionism in these two regions, while it would be to the disadvantage of some of the unindustrialized countries, would actually be to the advantage of others. Two examples will serve to illustrate the point. An increased stimulus to the production of wheat in any of the countries of North America or of

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[81]It has long been observed that periods of crisis can create favorable conditions for the creation of institutions to solve otherwise intractable problems. See, for example, Langan-Riekhof, Avanni and Janetti (2017).

Western Europe by increasing the exportable surplus of North America and decreasing the import requirements of Western Europe would depress the world market for wheat. This might mean that a country like India or Japan would obtain cheaper imports of wheat (either because of a fall in the world price or because of a development of special sales or gifts for the disposal of surplus wheat by the United States), but a country like Australia or the Argentine which competed in the world export market for wheat would be damaged. Another example of the same principle would be provided by measures which stimulated the export of raw cotton from the United States: this might increase the plenty and cheapness of raw cotton in world markets; an importing country like Japan would gain but competing exporters like Egypt, the Sudan, and Brazil would lose.

In general, if one considers any particular agricultural product, a protective stimulus to its production in any one country by increasing supplies relatively to the demand for that product will tend to depress the world market for that product. This will damage the interests of other countries which are exporters of the product on the world market. But it will be to the national interest of countries which import the product from world markets. Whether the initial protective stimulus confers a net benefit or a net damage to all other countries concerned depends, therefore, upon whether the country giving the protective stimulus to its own production is an exporter or an importer of the product; if it is an exporter it is conferring a benefit on the world by giving its supplies away at a cheap price; if it is an importer it is damaging the rest of the world by refusing to take their supplies.

This general principle can be applied to a single country or to a whole region. It is because Western Europe and North America in combination are net *importers* of agricultural produce that we reach the general conclusion that a reduction of agricultural protectionism in these areas will on balance benefit the rest of the world...(GATT, 1958, pp 93-94, original emphasis, footnotes omitted).

Here, when describing the impacts of agricultural protectionism in the industrialized world on various countries in the rest of the world, the Report's references to "depress the world market," "fall in the world price," gains for other importing countries from "cheaper imports" and losses for countries who are "competing exporters" reflect a simple terms-of-trade logic.

Moreover, the Harberler Report's references to the protective policies of "any of the countries of North America or of Western Europe," "any one country" and "a single country" suggest that the Report's authors accepted the notion that a single country's protective choices could have world price impacts; indeed, the general principle for signing the international externalities associated with commercial policy intervention stated by the Report in the quoted passage above is couched in terms of "the country giving the protective stimulus." Hence, in these paragraphs the authors appear to be describing the terms-of-trade externality that is at the heart of the terms-of-trade theory of trade agreements.

It is therefore accurate to say that the GATT was forged with the benefit of a substantial amount of knowledge, accumulated through prior experience, about what worked and what did not work, and at a moment in history where the best economists of the day were able to exert a remarkable level of influence over its design. This unique set of circumstances may go a long way toward explaining how the designers of GATT got it so right.

More speculatively, this may also help to account for the fact that, with the creation of the WTO, a number of features were added to the basic architecture of GATT that are less clearly supported by economic arguments.[82] The Uruguay Round negotiations that gave birth to the WTO in 1995 did not correspond to a period of crisis for the world economy in the way that GATT's creation in 1947 did, and it is perhaps in part for this reason that industry lobbies appear to have had a much bigger role in driving the design of the WTO than was true of GATT.[83] Whether or not the world economy is entering a crisis phase akin to that which gave rise to GATT, there is at least reason to hope that, with an economist now at the helm of the WTO, economics may again be elevated to a position of prominence in shaping the design decisions for the world trading system of the twenty-first century.

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[82]For example, Sykes (2003) offers a critique of the design and legal interpretations of the elaborations on GATT Article XIX embodied in the WTO Safeguard Agreement, Bagwell and Staiger (2006) have argued that the WTO Agreement on Subsidies and Countervailing Measures may have marked a step backward relative to GATT's treatment of subsidies (see also Sykes, 2005), and a number of economists have questioned the wisdom of including TRIPS in the WTO and its particular design (see, for example, Deardorff, 1990).

[83]See, for example, the account in Gad (2003) of the influence of the pharmaceutical lobbies on the TRIPS negotiations, among others.

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