

Working Paper No. 582

# Multilateral Trade Bargaining: A First Look at the Gatt Bargaining Records

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March 2017



**Stanford**

Center for International  
Development

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# MULTILATERAL TRADE BARGAINING: A FIRST LOOK AT THE GATT BARGAINING RECORDS\*

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March 2017

## Abstract

This paper empirically examines recently declassified data from the GATT/WTO on tariff bargaining. Focusing on the Torquay Round (1950-51), we document six stylized facts about these interconnected high-stakes international negotiations. Several of these stylized facts lend support to two features that are seen by GATT practitioners and legal scholars as hallmarks of the tariff bargaining that occurred in the early GATT rounds, namely, a surprising lack of strategic behavior among the participating governments and an important multilateral element to the bilateral bargains. We suggest that these features can be understood as emerging from a tariff bargaining forum that emphasizes the GATT pillars of MFN and multilateral reciprocity, and we offer evidence that the relaxation of strict bilateral reciprocity facilitated by the GATT multilateral bargaining forum was important to the success of the GATT approach.

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\*We thank the NSF (Grant SES-1326940) and SEED for financial support, and Sushan Demirjian, Diwakar Dixit, Anwarul Hoda, Lee Ann Jackson, Amelia Porges, William Powers and Suja Rishikesh for very helpful discussions related to various aspects of this project. We are especially grateful to Ambassador Julio Lacarte Muró for patiently answering our many questions about the mechanics of the early GATT rounds. We also thank Jakub Kastl, Nuno Limao, Marcelo Olarreaga, Marzena Rostek, Michele Ruta and seminar participants at Berkeley, Dartmouth, Georgetown, Indiana, Maryland, Princeton, Stanford, Yale and The World Bank as well as participants at the Dartmouth-SNU conference on International Trade Policy and Institutions, the NBER 2015 ITI Summer Institute and the Villars Research Workshop on the Economics of International Trade Agreements for very helpful comments. Patricia Abbott, Ayako Obashi, Woan Foong Wong and Junhui Zeng provided outstanding research assistance, as did Joanna Yeo, Zhufei Shi, and especially Elizabeth Stone on earlier phases of the data processing portion of this project. Bagwell thanks CASBS at Stanford for support and hospitality.

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## 1. Introduction

The World Trade Organization (WTO) and its predecessor the General Agreement on Tariffs and Trade (GATT)<sup>1</sup> have presided over the largest and most sustained negotiated trade liberalization in history. Yet challenges remain, as evidenced by the now-suspended Doha Round of multilateral trade negotiations. This paper introduces and empirically analyzes detailed negotiation data, recently declassified by the WTO, to understand the nature of tariff bargaining in the world trading system. Improving our understanding of these negotiations is important for addressing the challenges facing modern trade agreements. At the same time, analyzing these detailed offer data in high stakes international negotiations contributes to economists' understanding of bargaining more generally.

GATT/WTO tariff negotiations display several notable features. The negotiations are a form of barter, whereby governments accept commitments on their own import tariffs in exchange for the reciprocal tariff commitments of their principal trading partners. For each round a specific bargaining protocol is adopted, with explicit rules for the timing of events, the kinds of interactions expected and the exchange of information among participants. And though it is a multilateral institution, for the most part the GATT/WTO has adopted a bilateral approach to multilateral tariff bargaining according to which reciprocal “request-offer” negotiations occur on a voluntary basis between pairs of countries at the tariff-line level, with the results of these bilateral negotiations then “multilateralized” to the full GATT/WTO membership by a non-discrimination requirement that tariffs abide by the most-favored nation (MFN) principle.

In this paper we focus on the Torquay Round (1950-51), where over a 10 month period 299 separate bilateral negotiations among the 37 participating countries covering thousands of tariff-line products took place. We document a series of stylized facts about these negotiations. The numbers of back-and-forth offers and counteroffers in any bilateral bargain were relatively small. Once the initial proposals were on the table, the focus of bargaining narrowed to each country's own-tariff-cut offers, and countries responded to imbalances in the outstanding offers by adjusting their own offers rather than by adjusting their requests of others. Adjustments in offers typically took a simple and striking form: offers for given import products were rarely deepened over the course of the negotiations; instead, adjustments typically involved a country

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<sup>1</sup>The GATT was created in 1947, and it sponsored a total of eight multilateral negotiating rounds through 1994. With the conclusion of the eighth (Uruguay) round, the WTO came into existence on January 1, 1995, and it includes the GATT and a set of additional agreements that extend GATT principles to new areas.

“shopping around” its initial tariff-cut offers and ultimately reducing as necessary the depth of its overall (multilateral) offer. And when a country chose to reduce the depth of its offers, it did so with adjustments on the “extensive margin” (i.e., by removing products from its offers), not on the “intensive margin” (i.e., by raising the level of the tariff cut offered). Initial offers sometimes sat dormant for long periods only to be finalized with a single modification at the time that other bargains were concluded. The set of requests a country entertained seemed to conform with principal supplier considerations, but when it came to deciding which bargaining partners to make requests of on a given product there appears to have been a more narrow focus than principal supplier considerations would warrant. Substantial numbers of offers were made that were not requested by the country to which the offer was extended, and some offers were made that were not requested by any country at all. And there was substantial two-way bargaining within narrow product categories, and significant numbers of these two-way bargains occurred within a single bilateral.

Several of these stylized facts lend support to two features that are emphasized by GATT practitioners and legal scholars as hallmarks of the tariff bargaining that occurred in the early GATT rounds. A first feature is the surprising lack of strategic behavior among the participating governments, as emphasized for example by Curzon (1966); this feature is supported by our findings that offers of tariff cuts for given import products were rarely deepened as the round progressed, and that once the initial proposals were on the table the focus of bargaining narrowed to each country’s own-tariff-cut offers rather than the requests it had made of its bargaining partners. A second feature is the presence of an important multilateral element to the bilateral bargains, as emphasized for example in the early GATT report issued as ICITO (1949); this feature is suggested by our finding that, while the numbers of back-and-forth offers and counteroffers in any bilateral bargain are small, for some bargains the initial offers sit dormant for long periods of time before being finalized with a single modification at the time that other bargains are concluded.

We suggest that these features can be understood as emerging from a tariff bargaining forum that emphasizes the GATT pillars of MFN and multilateral reciprocity. To support this claim, we present a theoretical and institutional framework, adopting the perspective of the terms-of-trade theory of trade agreements (see Bagwell and Staiger, 2010a, for a recent review of the central features of this theory). On top of the basic theory, we layer the institutional features

of reciprocity and MFN.<sup>2</sup> MFN requires that any concession granted in a bilateral negotiation be extended unconditionally to the other members of GATT. Reciprocity, applied either at the bilateral or the multilateral level, requires that equilibrium agreements increase export volume for a given country by the same amount as the increase in its import volume, and prevents terms-of-trade changes as a result of the agreement.

We provide an interpretation of the features emphasized above through the lens of our theoretical and institutional framework: according to this interpretation, a country would propose for a given import product the tariff that generated its preferred trade volume for a fixed terms of trade, with the expectation 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. We argue that this bargaining behavior is broadly consistent with that expected according to our framework, if governments made dominant-strategy proposals under the strict institutional constraints of MFN and multilateral reciprocity. We also discuss and explore empirically the extent to which the UK and its Commonwealth partners, who maintained tariff preferences on selected products and hence represented an important exception to MFN at Torquay, and the newcomers to GATT who were negotiating their accession in the Torquay Round, exhibited bargaining behaviors consistent with our interpretation that MFN and multilateral reciprocity played an important role in shaping the bargaining behavior we observe at Torquay.

Finally, we offer evidence that the relaxation of strict bilateral reciprocity facilitated by the GATT multilateral bargaining forum was important to the success of the GATT approach, consistent with the view emphasized for example in the GATT report ICITO (1949). For this purpose, we focus on the breakdown of the bilaterals between the US on the one hand, and the UK and its Commonwealth partners Australia and New Zealand on the other, that occurred midway through the round. We test whether, after this breakdown, the offers on the table in the remaining bilaterals between each of these four countries and third parties were adjusted to compensate for the disappearance of the indirect benefits from the US-UK, US-Australia and US-New Zealand bilaterals that third parties might have expected if bilateral bargains exhibited multilateral but not bilateral reciprocity. Our findings support this view. Specifically, the nature of the adjustments in offers subsequent to these breakdowns that we

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<sup>2</sup>As we discuss further in Section 2, the theoretical foundations for our analysis of multilateral trade bargaining under MFN and reciprocity are formally established in Bagwell and Staiger (2016a).

document are consistent with the kind of rebalancing that would be required to reestablish multilateral reciprocity after such a breakdown, in that these four countries re-oriented their offers toward the rest of the participants at Torquay at the same time that the rest of the participants at Torquay were re-orienting their offers away from these four countries.

Can lessons learned from a 65-year-old GATT round have relevance for the modern era? We believe so, for at least two reasons. First, the participants at Torquay were facing a set of trade bargaining challenges that have clear counterparts today: approaching the potential bargaining externalities associated with MFN, addressing the existence of preferential tariffs, and dealing with asymmetries in the tariff levels across countries at different stages of development and with different negotiating histories. And second, the basic features of the bargaining protocol adopted at Torquay are still very much in use: for example, a similar protocol was adopted in the Doha Round for market access negotiations in the critical area of trade in services.<sup>3</sup>

Our paper is related to several literatures. Recent papers in international trade have asked whether there is empirical support for the terms-of-trade theory of trade agreements (e.g., Broda, Limao and Weinstein, 2008, Bagwell and Staiger, 2011, Ludema and Mayda, 2013, Bown and Crowley, 2013), whether reciprocity is a feature of tariff bargaining outcomes (e.g., Limao, 2006, 2007, Karacaovali and Limao, 2008), and whether MFN creates a free-rider problem for trade negotiations (e.g., Ludema and Mayda, 2009, 2013). And economic historians and political scientists have long debated what made GATT special as an institution for promoting trade liberalization (e.g., Irwin, 1995, and Gowa and Kim, 2005). Our paper provides evidence on each of these questions, but for the first time from the perspective of actual tariff bargaining data. In the context of the empirical bargaining literature, a handful of papers empirically examine bilateral bargaining with not just outcome data, but detailed offer and counter-offer data. These include Keniston (2013) and Larsen (2014). In these settings, bilateral negotiations do not affect payoffs of parties not involved in the bargain. In parallel, there is an emergent literature in industrial organization empirically examining bilateral bargaining with externalities using data on only outcomes as in Crawford and Yurukoglu (2012). Our paper is unique in looking at detailed offer and counter-offer data in a setting of bilateral bargaining with externalities.

The remainder of the paper proceeds as follows. In section 2 we present a basic modeling framework for interpreting tariff negotiations. We describe the GATT bargaining protocols in

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<sup>3</sup>The Doha protocol for market access negotiations over trade in services shares the same bilateral request-offer format as the Torquay protocol, though the Doha rules for the exchange of information across bilaterals appear to have evolved somewhat. See, for example, Feketekuty (2008), WTO (2001) and WTO (2002).

section 3, and in section 4 we discuss the broad features of the GATT bargaining data. In section 5 we present summary statistics relating to the Torquay bilaterals and describe stylized facts about multilateral tariff bargaining that are suggested by these bargaining records. In section 6 we introduce institutional detail into our basic modeling framework to provide further interpretation of tariff bargaining at Torquay. In section 7 we present our empirical investigation into multilateral versus bilateral reciprocity. Section 8 concludes.

## 2. A Basic Framework for Interpreting Tariff Negotiations

It is not self-evident how one can make sense of even the most basic features of tariff bargaining. Why do trade negotiators view own-tariff cuts as “concessions” to be granted only in return for foreign tariff cuts for their exporters? What do governments have to gain from bargaining over tariffs anyway? And how can one account for the narrow focus of negotiations on tariff bargaining, when it is clear that trade flows can be impacted by a wide range of government policies? If a modeling framework is to serve as a foundation for interpreting the GATT tariff bargaining data, it should be capable of providing answers to at least these most basic questions.

In this section we sketch a basic modeling framework that highlights the terms-of-trade externality associated with unilateral tariff choices, and that yields answers to the questions posed above. More specifically, below we review the textbook two-good general-equilibrium model of trade between two countries, add to this a general family of government preferences, and use the resulting framework to answer these questions. We then briefly extend the framework to a multicountry setting in order to examine how interdependence across countries is shaped by the MFN principle. For these purposes we paraphrase the treatment in Bagwell and Staiger (2010a), and refer readers there for details. In later sections, after the stylized facts of the GATT bargaining data have been presented, we will augment the basic framework developed here with additional institutional structure, and from the perspective of the resulting model predictions will then offer an interpretation of some of the hallmarks of GATT tariff bargaining as documented by these stylized facts.

**A Model Two-Country World Economy** Two countries, domestic (no \*) and foreign (\*), trade two goods which are normal in consumption and produced in perfectly competitive markets under conditions of increasing opportunity costs. We let  $x$  ( $y$ ) denote the natural import good of the domestic (foreign) country. The local relative price facing domestic (foreign)

producers and consumers is defined as  $p \equiv p_x/p_y$  ( $p^* \equiv p_x^*/p_y^*$ ). Tariffs are non-prohibitive, and the domestic (foreign) ad valorem import tariff is  $t$  ( $t^*$ ). Letting  $\tau \equiv (1 + t)$  and  $\tau^* \equiv (1 + t^*)$ , we then have that  $p = \tau p^w \equiv p(\tau, p^w)$  and  $p^* = p^w/\tau^* \equiv p^*(\tau^*, p^w)$ , where  $p^w \equiv p_x^*/p_y$  is the “world” (i.e., untaxed) relative price. The foreign terms of trade is given by  $p^w$ , and the domestic terms of trade is  $1/p^w$ . We interpret  $\tau > 1$  as an import tax and similarly for  $\tau^*$ .

In each country, production levels for  $x$  and  $y$  are determined by the local relative price:  $Q_i = Q_i(p)$  and  $Q_i^* = Q_i^*(p^*)$  for  $i = \{x, y\}$ . Consumption is also influenced by the local relative price, which defines the trade-off faced by consumers and determines the level and distribution of factor income. Consumption depends as well on tariff revenue  $R$  ( $R^*$ ), which is measured in units of the local export good at local prices and is distributed lump-sum to domestic (foreign) consumers. Domestic and foreign consumption thus may be represented as  $D_i = D_i(p, R)$  and  $D_i^* = D_i^*(p^*, R^*)$  for  $i = \{x, y\}$ . But tariff revenue is implicitly defined by  $R = [D_x(p, R) - Q_x(p)][p - p^w]$  or  $R = R(p, p^w)$  for the domestic country, and similarly we have that  $R^* = [D_y^*(p^*, R^*) - Q_y^*(p^*)][1/p^* - 1/p^w]$  or  $R^* = R^*(p^*, p^w)$  for the foreign country; and each country’s tariff revenue increases with its terms of trade, given our assumption of normal goods. Hence, we may express national consumption as a function of local and world prices:  $C_i(p, p^w) \equiv D_i(p, R(p, p^w))$  and  $C_i^*(p^*, p^w) \equiv D_i^*(p^*, R^*(p^*, p^w))$  for  $i = \{x, y\}$ .

Imports of  $x$  and exports of  $y$  for the domestic country are respectively defined by  $M(p, p^w) \equiv C_x(p, p^w) - Q_x(p)$  and  $E(p, p^w) \equiv Q_y(p) - C_y(p, p^w)$ . Likewise, for the foreign country, we have  $M^*(p^*, p^w)$  and  $E^*(p^*, p^w)$ , respectively. For any prices, domestic and foreign budget constraints are represented by the trade-balance equations:

$$p^w M(p, p^w) = E(p, p^w), \text{ and } M^*(p^*, p^w) = p^w E^*(p^*, p^w). \quad (2.1)$$

The equilibrium world price,  $\tilde{p}^w(\tau, \tau^*)$ , is determined by market clearing for good  $y$ :

$$E(p(\tau, \tilde{p}^w), \tilde{p}^w) = M^*(p^*(\tau^*, \tilde{p}^w), \tilde{p}^w), \quad (2.2)$$

where we make explicit in (2.2) the functional dependencies for local prices. Market clearing for good  $x$  is then guaranteed by (2.1) and (2.2).

We assume  $dp/d\tau > 0 > dp^*/d\tau^*$  and  $\partial\tilde{p}^w/\partial\tau < 0 < \partial\tilde{p}^w/\partial\tau^*$ , thereby ruling out the Metzler and Lerner paradoxes, and with the final two inequalities indicating that each country is “large” (i.e., each country can improve its terms of trade by increasing its tariff).



**Government Preferences** The traditional approach to representing government preferences is to impose the assumption that governments maximize national income; by contrast, in the political-economy approach, governments are motivated by distributional concerns. Here, we follow Bagwell and Staiger (1999, 2002) and adopt a general approach to modeling government preferences, representing the objectives of the domestic and foreign governments with the general functions  $W(p, \tilde{p}^w)$  and  $W^*(p^*, \tilde{p}^w)$ , respectively. We thus represent welfare in terms of the prices that the tariffs induce rather than directly in terms of the tariffs themselves. This approach enables us to disentangle the separate roles played by the terms-of-trade externality and political motivations in explaining what governments have to gain from bargaining over tariffs.

We place no restrictions on government preferences over local prices: as local prices determine the level and distribution of factor incomes, we therefore accommodate a wide range of political motivations. We assume only that, holding its local price fixed, each government is pleased when its terms of trade improve:

$$W_{\tilde{p}^w} < 0 \text{ and } W_{\tilde{p}^w}^* > 0. \quad (2.3)$$

The meaning of (2.3) in terms of the underlying tariff changes is that a government values the international income transfer that is implied by an increase in its own tariff and a decrease in the tariff of its trading partner that together leave its local price unaltered. As Bagwell and Staiger (1999, 2002) discuss, governments maximize welfare functions of this form in both the traditional approach and in the leading political-economy approaches to trade policy.

**Unilateral Policies** To analyze optimal unilateral (non-cooperative) policies, we suppose that each government sets its tariff policy to maximize its welfare, for any given tariff choice of its trading partner. The associated tariff reaction curves are defined implicitly by

$$W_p + \lambda W_{\tilde{p}^w} = 0, \text{ and} \quad (2.4)$$

$$W_{p^*}^* + \lambda^* W_{\tilde{p}^w}^* = 0, \quad (2.5)$$

where  $\lambda \equiv [\partial \tilde{p}^w / \partial \tau] / [dp / d\tau] < 0$  and  $\lambda^* \equiv [\partial \tilde{p}^w / \partial \tau^*] / [dp^* / d\tau^*] < 0$ . As these expressions highlight, the best-response tariff of each government strikes a balance between the effects on its welfare of the local- and world-price movements induced by its tariff choice.<sup>4</sup>

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<sup>4</sup>We assume throughout that the second-order conditions associated with any maximization problem hold globally.

The welfare implications of the local-price movement in the first term of (2.4) are domestic in nature: they reflect the trade-off for the domestic government between the costs of the induced economic distortions and the benefits of any induced political support. By contrast, the welfare implications of the world-price movement in the second term of (2.4) are international in nature: they reflect the benefits to the domestic government of shifting some of the costs of its policy choice onto the foreign government. Cost shifting occurs, since any improvement in the domestic country's terms of trade is a deterioration in the foreign country's terms of trade. We may similarly interpret (2.5) for the foreign government.

In a Nash equilibrium, both governments are on their reaction curves, and a Nash equilibrium tariff pair  $(\tau^N, \tau^{*N})$  thus satisfies (2.4) and (2.5). We take this equilibrium to represent the trade-policy decisions that governments would make if there were no trade agreement.

From the perspective of (2.4) and (2.5), we may now return to the first question posed above and observe that it is natural within this modeling framework that trade negotiators would view own-tariff cuts as “concessions” to be granted only in return for foreign tariff cuts for their exporters. First, beginning from (2.4) and (2.5), *any* own-tariff change would be viewed as a concession, given that governments begin from their best-response tariffs. And second, (2.4) implies  $W_p < 0$  when the home government selects its best-response tariff. Hence, if the home government were to request a small foreign tariff cut for its exporters and offered as a concession a small tariff cut of its own that prevented the terms of trade  $\hat{p}^w$  from changing, the proposed tariff changes would reduce  $p$  while leaving  $\hat{p}^w$  unchanged and therefore deliver  $-W_p > 0$ , increasing the welfare of the home government. As (2.5) implies  $W_{p^*}^* > 0$  when the foreign government selects its best-response tariff, an analogous observation applies for the foreign government.

**Trade Agreement** Governments value a trade agreement if it leads to changes in trade policies that generate Pareto improvements for governments relative to their welfare in the Nash equilibrium. Thus, a trade agreement is potentially valuable if and only if the Nash equilibrium is inefficient, when efficiency is measured relative to government preferences.

Three observations can be stated.<sup>5</sup> First, Nash tariffs are indeed inefficient. Second, both governments can gain relative to Nash only if each agrees to set its tariff below its Nash level. The first observation means that a mutually beneficial trade agreement is possible, while the

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<sup>5</sup>Formal proofs of these observations can be found in Bagwell and Staiger (1999, 2002).

second observation implies that reciprocal trade liberalization is necessary for mutual gains. Intuitively, when a government contemplates an increase in its unilateral tariff, it foresees an improvement in its terms of trade; thus, it is in part motivated by the prospect of shifting some of the costs of the tariff hike onto its trading partner. The incentive to shift costs naturally leads governments to set tariffs that are higher than is efficient.

To see if the terms-of-trade externality is the only reason for the inefficiency of Nash tariffs, consider a hypothetical world in which governments are not motivated by the terms-of-trade implications of their unilateral trade-policy choices, that is, a hypothetical non-cooperative setting in which  $W_{\tilde{p}^w} \equiv 0$  and  $W_{\tilde{p}^w}^* \equiv 0$ . Next define the “domestic politically optimal reaction curve” by  $W_p = 0$ , the “foreign politically optimal reaction curve” by  $W_{p^*} = 0$ , and the *politically optimal tariffs* as any tariff pair  $(\tau^{PO}, \tau^{*PO})$  that satisfies the first-order conditions  $W_p = 0$  and  $W_{p^*} = 0$ . The third observation is that politically optimal tariffs are efficient (when evaluated with actual government preferences): the terms-of-trade externality is the sole rationale for a trade agreement in this (“terms-of-trade theory”) modeling framework. Put differently, according to this modeling framework and in answer to the second question posed above, the gains from tariff bargaining come from the ability to eliminate the inefficient terms-of-trade driven motives from unilateral tariff choices.

The politically optimal tariffs are not the only efficient tariffs. In the special case where governments maximize national welfare, efficient tariffs satisfy  $\tau = 1/\tau^*$  (as Mayer, 1981 shows) and politically optimal tariffs correspond to reciprocal free trade (i.e.,  $\tau = \tau^* = 1$ ), a point on the Mayer locus. A trade agreement enables governments to move from the inefficient Nash tariffs to some point on the contract curve, where the contract curve is that portion of the efficiency frontier on which neither government receives below-Nash welfare. The politically optimal tariffs lie on the contract curve, provided that the countries are not too asymmetric.

Finally, with terms-of-trade manipulation identified as the only source of policy inefficiency in the Nash equilibrium, it is a short step to the realization that, if the modeling framework is extended to include additional “behind-the-border” policies, in the Nash equilibrium only the tariffs will be set inefficiently. This follows because tariffs are the first-best instrument for terms-of-trade manipulation, and so there is no need for governments to distort other policies for this purpose (see Bagwell and Staiger, 2001, 2002). This gives rise to the possibility that “shallow integration” trade agreements, which focus on tariff bargaining to achieve efficient levels of market access and are accompanied by a set of rules to prevent “back-door” protectionism

through the introduction of new behind-the-border measures once tariffs are constrained by negotiation, can lead governments to the efficiency frontier.<sup>6</sup> Hence our modeling framework provides an answer to the third question posed above.

**Interdependence in a Multilateral World** We next consider briefly the interdependence across pairs of countries that arises in a multilateral world, and how the MFN principle shapes this interdependence. For this purpose we extend the modeling framework introduced above to a three-country setting, and once again paraphrase the treatment in Bagwell and Staiger (2010a), referring readers there for details.

The domestic country now exports good  $y$  to two foreign countries, denoted by the superscripts ‘\*1’ and ‘\*2,’ and imports good  $x$  from each of these countries (who do not trade with each other). Each foreign country can impose a tariff on its imports of good  $y$  from the domestic country (we denote the tariff of foreign-country  $i$  by  $\tau^{*i}$ ), while the domestic country can set tariffs on its imports of good  $x$  from the two foreign countries. If the domestic country applies the tariff  $\tau^1$  to imports from foreign-country 1 and the *discriminatory* tariff  $\tau^2 \neq \tau^1$  to imports from foreign-country 2, then separate world prices  $p^{w1}$  and  $p^{w2}$  apply to its trade with foreign-countries 1 and 2 respectively. This follows because there can only be one local price in the domestic economy, and the pricing relationships  $p = \tau^1 p^{w1}$  and  $p = \tau^2 p^{w2}$  then imply  $p^{w1} \neq p^{w2}$  whenever  $\tau^1 \neq \tau^2$ .

The MFN rule imposes a very simple requirement: the domestic country must apply a common tariff level  $\tau^1 = \tau^2 \equiv \tau$  to the imports of  $x$ , regardless of whether these imports originate from foreign-country 1 or 2. An important implication of the MFN rule is then that a single equilibrium world price,  $\tilde{p}^w(\tau, \tau^{*1}, \tau^{*2})$ , must prevail; consequently, we may continue to express government preferences with the simple representation  $W(p, \tilde{p}^w)$ ,  $W^{*1}(p^{*1}, \tilde{p}^w)$  and  $W^{*2}(p^{*2}, \tilde{p}^w)$ , where  $p = \tau p^w \equiv p(\tau, p^w)$  and  $p^{*i} = p^w / \tau^{*i} \equiv p^{*i}(\tau^{*i}, p^w)$ ,  $i = 1, 2$ .

In a multilateral world, the MFN principle therefore ensures that the international externality at the root of the problem to be solved by a trade agreement continues to exhibit the same structure as in the simpler 2-country setting. At the same time, as the equilibrium world price function  $\tilde{p}^w(\tau, \tau^{*1}, \tau^{*2})$  indicates, in general each country’s welfare will be impacted by the tariff choices of the remaining two countries if these tariff choices impact the world price.

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<sup>6</sup>For a recent review of the trade agreements literature, including the logic of shallow integration when viewed from the perspective of the terms-of-trade theory, see Bagwell, Bown and Staiger (2016).

Bilateral MFN tariff bargains will therefore in general impose externalities on third countries, pointing to a potentially important multilateral dimension associated with such bargains.<sup>7</sup> Put differently, according to our modeling framework a collection of bilateral MFN tariff bargains would represent a setting of bilateral bargaining with externalities, which is well-known to be in general a complex bargaining environment.<sup>8</sup>

### 3. The GATT Bargaining Protocols

Armed with a basic framework for interpreting tariff negotiations, we now describe the GATT bargaining protocols. The first five GATT rounds adopted the approach of selective product-by-product MFN tariff negotiations on a bilateral request-offer basis, as did to varying degrees the eighth GATT (Uruguay) round and the currently suspended WTO (Doha) round. As Hoda (2001) explains, the protocols for the first five rounds were broadly 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. (pp. 44-45)

As a general matter, the initial request lists of tariff cuts were common knowledge (circulated among all the participating governments) in each of the first five rounds, while the back-and-forth offers and counteroffers that transpired within each bilateral were known only to the participating governments in that bilateral, until the GATT Secretariat was informed that an outcome for that bilateral (success or failure) had been achieved, at which point the details of successful bilaterals became common knowledge. Tariffs agreed in a bilateral would apply on a non-discriminatory basis to exports from any GATT-member country through the MFN principle.

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<sup>7</sup>In the absence of MFN, there would also be potentially important multilateral dimensions associated with any bilateral (discriminatory) tariff bargain, but the spillovers would be different (see, for example, Bagwell and Staiger, 2005).

<sup>8</sup>On the complexity of bilateral bargaining with externalities, see Cremer and Riordan (1987), Horn and Wolinsky (1988), McAfee and Schwartz (1994) and Hart and Tirole (1990), and see Bagwell, Staiger and Yurukoglu (2017) in the particular context of bilateral tariff bargaining.

**General Objectives and the Nature of Negotiations** The protocols all included a statement of general objectives (“...to bring about the substantial reduction of tariffs and the elimination of tariff preferences”), and a description of the general nature of negotiations which placed emphasis on achieving balance in the negotiations and flexibility to maintain tariffs at individually preferred levels. For example, the protocol for the initial 1947 GATT round in Geneva stated that

...tariff negotiations shall be on a ‘reciprocal’ and ‘mutually advantageous’ basis. This means that no country would be expected to grant concessions unilaterally, without action by others, or to grant concessions to others which are not adequately counterbalanced by concessions in return

The elimination of tariff preferences (mainly those of the British Commonwealth system, which were product-specific and reflected a grant of market access at preferential but not necessarily zero tariff rates) was also emphasized in the early GATT protocols; and it was anticipated that negotiated reductions in MFN tariffs would be the main engine for achieving this goal, as reflected for example in the statement from the protocol for the initial 1947 GATT Round in Geneva that

All negotiated reductions in most-favored-nation import tariffs shall operate automatically to reduce or eliminate margins of preference.

**A Base Date for Preference Standstill and Avoidance of New Tariffs** It was agreed that no margin of tariff preference should be increased as a result of GATT negotiations, and to implement this agreement a base date for the calculations of the preference margins existing prior to the first GATT negotiating round had to be set. In addition, in order to avoid the problem of MFN “bargaining tariffs” raised on the eve of a round for bargaining purposes, each protocol contained rules against such conduct.

**Principal Supplier Rule** All protocols envisaged that the selective product-by-product tariff negotiations would proceed according to the “principal supplier” rule. In the protocol for the initial 1947 GATT Round in Geneva which was held among 23 member countries of the (Havana Charter) Preparatory Committee, the principal supplier rule was defined:

It is generally agreed that the negotiations should proceed on the basis of the ‘principal supplier’ rule, as defined in this paragraph. This means that each country would be expected to consider the granting of tariff or preference concessions only on products of which the other members of the Preparatory Committee, are, or are likely to be, principal suppliers... In other words, if a principal part of total imports of a particular product into the territory of a particular member is supplied by the other members of the Preparatory Committee taken together, then the importing member should, as a general rule, be willing to include that product in the negotiations, even though no single other member of the Committee, taken by itself, supplies a principal part of the total imports of the product.

**Extensive Form of Negotiations** The protocols described procedures for conducting negotiations which amounted to a four stage process. At a broad level, these procedures were described in greatest detail in the protocol for the initial 1947 GATT Round in Geneva, though as we explain further below there was some evolution in particular features of these procedures across rounds. The protocol for the 1947 round stipulated the following timing:

1. Prior to the opening of talks, each participating country transmits lists of requests of product-level concessions it seeks from each other participating country.
2. At the opening of talks, each country submits lists of product-level concessions it would offer to each other participating country given the requests it has made of them.
3. Pairs of countries negotiate directly over concessions of primary concern between those two countries. This is effectively simultaneous interconnected bargaining.
4. As bilateral agreements are reached, third-party countries can examine the agreements, and potentially modify their own agreements in response.

Later rounds evolved along several specific dimensions. In particular, the rules on sharing information among participants about initial offers (the second stage of the 1947 protocol) evolved somewhat from round to round. For example, the protocol for the 1949 Annecy Round states:

...On 11 April, 1949, – that is, on the first day of the meeting..., each government will make known to all participating governments the concessions which it is prepared to

offer to each government from which a request for concessions was received...When the concessions offered by all participating governments have been exchanged and distributed, negotiations between pairs of delegations will begin.

Here it seems clear that the initial offers, like the initial requests, were to be common knowledge. But by the 1950-51 Torquay Round, the emphasis on sharing initial (second stage) offers among participants seems to have disappeared. The Torquay protocol states:

On September 28, 1950 – that is, on the first day of the meeting in Torquay – each government should be ready to make known the concessions it is prepared to offer to each government from which a request for concessions is received...When the offers have been exchanged, negotiations between pairs of delegations will begin.

#### 4. The GATT Bargaining Records

The GATT bargaining records make it possible to recover the complete history of offers and counteroffers in a given round. For the Torquay Round, we illustrate in Figure 1 with a sample of the bargaining record from the US-France bilateral negotiation from that round.

CONFIDENTIAL

February 24, 1951

GENERAL AGREEMENT ON TARIFFS AND TRADE

TARIFF NEGOTIATIONS 1950-1951

LIST OF REQUESTS

Supplementary list of tariff concessions which the Government of the UNITED STATES OF AMERICA requests from the Government of FRANCE.

Tariff Item NO.	Stat. No.	Description of Products	Present rate of duty	Proposed rate of duty
			(Percent ad valorem)	
174	04-28-00	Sugared powders for making custards, puddings, desserts, etc., without cocoa or chocolate	20	15
260	05-13-64	Natural corundum crushed or pulverized	5	bind
389	06-13-31	Lithium hydroxide	25	15
402 B	06-13-57	Chrome trioxide (chromic anhydride)	30	20

Figure 1: Excerpt of US-France Negotiation Record



This particular bilateral began on February 6 1951 with an exchange of secret offers (not shown in Figure 1) between France and the US describing the tariff cuts to which each would agree if the other met its earlier (and publicly) announced requests. The excerpted bargaining record in Figure 1 describes a portion of the (secret) request by the US on February 24 that France supplement its February-6 offer. France did supplement its offer on March 31 1951, and on that day the US and France announced publicly the agreement resulting from their bilateral (which amounted to the US tariff cuts offered to France on February 6 and the supplemented France tariff cuts offered to the US on March 31). By following in this way the timing and sequence of the request-offer records, we can construct the full sequence of offers and counteroffers that led to agreement or disagreement for each of the bilaterals in the Torquay Round.

To illustrate further how the GATT bargaining records can be used to illuminate the multi-lateral bargaining behavior of participants in the round, we highlight in Figure 2 the bargaining behavior of the US with regard to one particular 6-digit product, HS 843319 (Mowers for lawns, other than powered and with a horizontal rotating cutter). Specifically, Figure 2 depicts the complete request-offer sequence involving the tariffs on such lawn mowers between the US and each of the five countries whose bilateral bargains with the US involved a request and/or offer on this product. We denote by the symbol R a request, by O an offer, by OW a withdrawn offer and by A an agreement. These symbols are positioned at the height of the tariff request or offer, so that a horizontal line between any two symbols indicates that the tariff level across those two actions is the same, while an upward sloping (downward sloping) line between any two symbols indicates that the tariff level across those two actions increased (decreased).

As reflected in Figure 2, between June 1 and July 1, 1950, the US made requests of all five of these countries (Canada, New Zealand, Peru, Sweden and the UK) to reduce their import tariffs on such lawn mowers, and the US received requests to reduce its own tariff on these lawn mowers from two of the countries (Canada and the UK). In the months that followed, Peru and Sweden each made offers to the US at a level which met the US request, while New Zealand, Canada and the UK each made offers to the US at a level which did not go all the way to meet the US request and New Zealand and the UK subsequently withdrew their offers; and for its part, the US did not respond to the Canadian request but did make an offer to the UK to cut its tariff on this product, an offer that the US subsequently withdrew. The final commitments on HS 843319 tariffs emerging from these five bilaterals were three: a commitment by Canada negotiated with the US to reduce the Canadian tariff on lawn mowers; a commitment by Peru

negotiated with the US to reduce the Peruvian tariff on lawn mowers; and a commitment by Sweden negotiated with the US to reduce the Swedish tariff on lawn mowers.

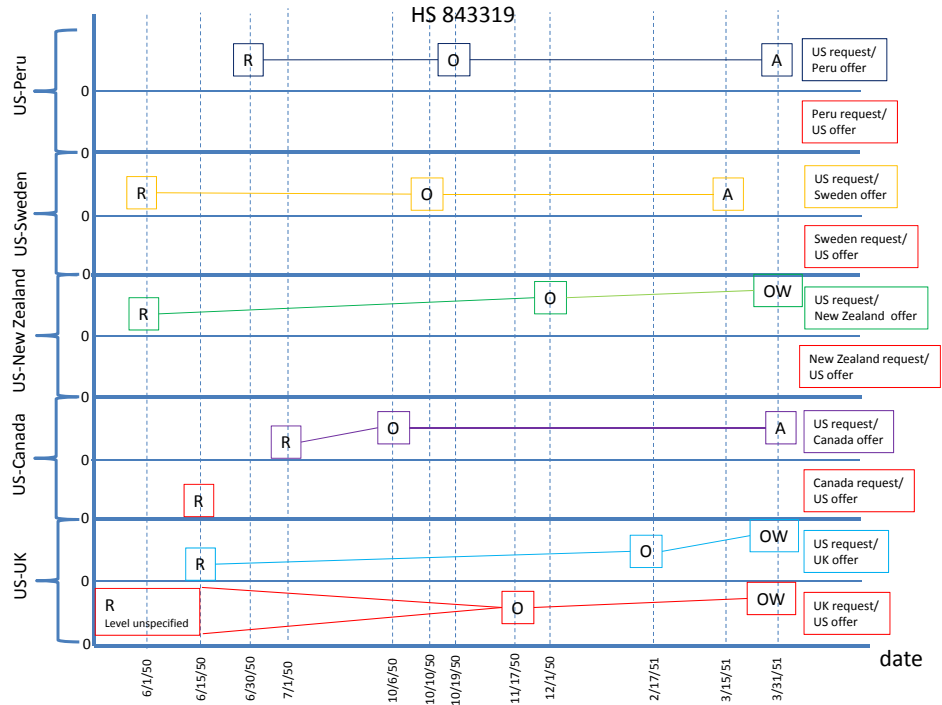


Figure 2: Requests and Offers on Lawn Mowers in US Torquay Bilaterals.

Notes: This Figure depicts the complete request-offer sequence between the US and each of the five countries whose bilateral bargains with the US involved a request and/or offer on lawn mowers (HS 843319). The symbol R denotes a request, O an offer, OW a withdrawn offer and A an agreement. These symbols are positioned at the height of the tariff request or offer, so that a horizontal (upward/downward sloping) line between any two symbols indicates that the tariff level across those two actions is the same (increased/decreased).

An important question is the degree to which the GATT bargaining records provide a complete catalog of every offer and counteroffer that was tendered in a round. It is clear that these records represent a complete list of the initial offers that each country made to every other country, and a complete list as well of the final agreed tariff commitments that came out of each bilateral. Hence, at a minimum the GATT bargaining records provide an accurate view of where each bilateral bargain started, where it ended up, and the elapsed time from start to finish. What is less clear is whether the official record provides a complete catalog of the back-and-forth counteroffers that occurred between the initial offers and the final outcome.

While it would be implausible to suppose that there was no communication outside of the official counteroffers included in the GATT bargaining records, at least for the earlier rounds there are two reasons to believe that the records offer a fairly complete catalog of the tendered counteroffers. First, in older rounds such as the Torquay Round that predated the ready use of electronic records and portable computing devices, a written record of the detailed product-level bilateral tariff cutting proposals – proposals which typically included dozens if not hundreds of product-level tariff cuts to be considered – was the only way that a proposal or counter-proposal could be offered and assessed.<sup>9</sup> Second, the final bargaining outcomes in the GATT bargaining records predominantly emerge in a continuous fashion from the recorded requests, offers and counteroffers, rather than appearing in the final agreement as a new and never-before-recorded proposal – for example, 95% of the exact tariff bindings to which the US ultimately agreed in the Torquay Round first appear in the US-Torquay bargaining records as either requests by US bargaining partners or as earlier US offers to some bargaining partner – which is at least consistent with the lack of important informal proposals being tendered outside of the recorded counteroffers.<sup>10</sup>

There are a number of significant challenges that must be overcome before the GATT bargaining data can be used for research. The Online Data Appendix covers these issues in detail. The most challenging issue concerned creating product level concordances across negotiations. Our solution was to concord product level descriptions into HS 1988 6-digit codes. We henceforth refer to an HS6 code as a product.

## 5. Stylized Facts of GATT Tariff Bargaining

We now present data from the Torquay Round tariff bargaining records to develop a number of stylized facts relating to GATT tariff bargaining. We start with an overview of the number of parties and the timing and frequency of their actions. We then describe a set of stylized facts.

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<sup>9</sup>We thank Sushan Demirjian, Deputy Assistant USTR for Market Access and Industrial Competitiveness, for pointing this out to us.

<sup>10</sup>More specifically, only 64 out of the 1,260 HS6 tariff bindings to which the US agreed in its Torquay bilaterals do not appear as either requests or earlier offers in some US bilateral; and this count reflects an upper bound, because the numbers are calculated at the HS6 level and a lack of match could reflect changes in the 10 digit product mix in any given HS6 product category over the course of the bargain rather than the appearance of a tariff binding in the final agreement that did not appear somewhere in the US bilateral bargaining records at an earlier date (see also note 20).

## 5.1. Overview

We begin with a helicopter view of the Torquay negotiations. There were 39 participating countries in the Torquay Round, accounting for well over 80 percent of world trade as of 1949 (see, for example, US Department of State, 1951, p. 1).<sup>11</sup> However, the Benelux customs union (consisting of Belgium, Luxembourg and the Netherlands) negotiated its common external tariffs as a single entity, reducing the total number of parties negotiating at Torquay to 37. Of the 666 possible bilaterals, 299 were initiated, and of these, 148 bilaterals were successfully concluded (i.e., led to agreed tariff commitments).<sup>12</sup>

Figure 3 provides a snapshot of who did what with whom in the Torquay Round. It is natural to expect that larger countries would have been more active in the round, while it is often said that GATT was “a rich man’s club.”<sup>13</sup> The three panels on the left of Figure 3 display the relationship between the bilateral bargaining activity of a country and its real GDP in 1950, while the three panels on the right of Figure 3 display the relationship between bilateral bargaining activity and real 1950 per-capita income. The top panels refer to requests or modifications of requests, the middle panels refer to offers or modifications of offers, and the bottom panels refer to agreements or modifications of agreements. In each panel, the horizontal axis records the “proposer” country (that is, the country making the request, or the offer, or agreeing to the tariff cut) ordered from left to right by descending GDP level (left panel) or GDP per-capita level (right panel), and the vertical axis records the “target” country for that proposal ordered from bottom to top by descending GDP level (left panel) or GDP per-capita level (right panel). Darker squares mean greater numbers of products being negotiated

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<sup>11</sup>We count as participating any country that made a formal request or offer to or received a formal request or offer from at least one country in the context of the Torquay Round. The participating countries were Australia, Austria, Benelux Countries (Belgium, Luxembourg, Netherlands), Brazil, Burma, Canada, Ceylon, Chile, Cuba, Czechoslovakia, Denmark, Dominican Republic, Finland, France, Germany, Greece, Guatemala, Haiti, India, Indonesia, Italy, Korea, Liberia, New Zealand, Nicaragua, Norway, Pakistan, Peru, Philippines, Southern Rhodesia, Sweden, Syria-Lebanon, Turkey, South Africa, United Kingdom, United States and Uruguay. Of these, six were negotiating for accession at Torquay: Austria, Germany, Korea, Peru, Philippines and Turkey.

<sup>12</sup>Of the 299 bilaterals initiated at Torquay, 6 involved Burma (Myanmar) and these GATT bargaining records currently remain restricted so they are excluded from our dataset (these bilaterals did not progress past the request stage, and amounted to requests of Burma made by Canada, Czechoslovakia, Denmark, France, Norway and Sweden).

<sup>13</sup>For instance, if it is accepted that larger countries have greater market power (i.e., have greater ability to impact foreign exporter prices with their unilateral tariff choices – see Broda, Limao and Weinstein, 2008), then the terms-of-trade theory of trade agreements described in section 2 would lead to the expectation that larger countries would be more active participants in tariff negotiations. On the view that GATT was “a rich man’s club,” see for example the discussion in Chapter 2 of Eckes (2000).



Figure 3: Adjacency Matrices for Torquay Bilaterals Notes: Left Panels (Right Panels) order countries left to right and bottom to top by decreasing GDP (GDP per capita); x-axis is proposer country, y-axis is target country; Top Panels reflect Requests, Middle Panels reflect Offers, Bottom Panels reflect Agreements; Darker squares mean greater numbers of products being negotiated.

in the associated bilateral. From the top panels of Figure 3, it is clear that most countries, though especially the large/rich countries, made market access requests, and they directed their requests mostly to the large/rich countries. The middle panels of Figure 3 reveal that market access offers came mostly from the large/rich countries, and that most countries were the recipients of at least some of these market access offers, though other large/rich countries were the most frequent recipients. And the bottom panel of Figure 3 reveals that mostly the large/rich countries agreed to cut their tariffs as a result of the Torquay Round, and that their agreements to do so, though primarily with other large/rich countries, spanned bilaterals with most of the participating countries at Torquay.

In Figure 4 we represent a game tree for the Torquay Round, beginning from the “opening of talks” when countries first began to exchange initial offers (that is, we exclude from the game tree the “request” stage prior to the opening of talks). The game tree in Figure 4 collapses the 299 simultaneous bilaterals at Torquay into a single representative bilateral, with representative countries 1 and 2 having alternating opportunities to take an action, where the action may be an offer to cut one’s tariffs (O), a modification of an offer (OM), a modification of a previous request that the bargaining partner cut its tariffs (RM), an agreement to cut one’s tariffs (A), a modification of an agreement (AM), or the possibility of taking no action at that time ( $\phi$ ). On each branch of the tree we record the number of bilaterals along that branch (the first number in parentheses), the mean number of products in play per bilateral along that branch (the second number in parentheses), and the mean of the proposed tariff divided by the pre-existing tariff along that branch (the third number in parentheses). Finally, a terminal node labeled “Y” indicates that this branch of the game tree ends in a set of final agreed tariff commitments, while a terminal node labeled “N” indicates that this branch of the game tree ends in no agreement.

Beginning from the top of Figure 4, the initial left branch of the game tree depicts immediate agreement that occurred (subsequent to requests, not shown) for a number of the countries that were negotiating for accession during the Torquay Round; the main initial branch of the game tree is the right branch, which depicts a sequence of offers (O) and counteroffers (OM, RM) that led either to failed bilaterals (terminal node N) or to agreements (A, AM) and ultimate success (terminal node Y). As the branches of the game tree in Figure 4 reveal, the majority of offers and counteroffers are concluded in a small number of alternating steps, and most terminal nodes are reached in a small number of steps after that. But there are also some longer branches that

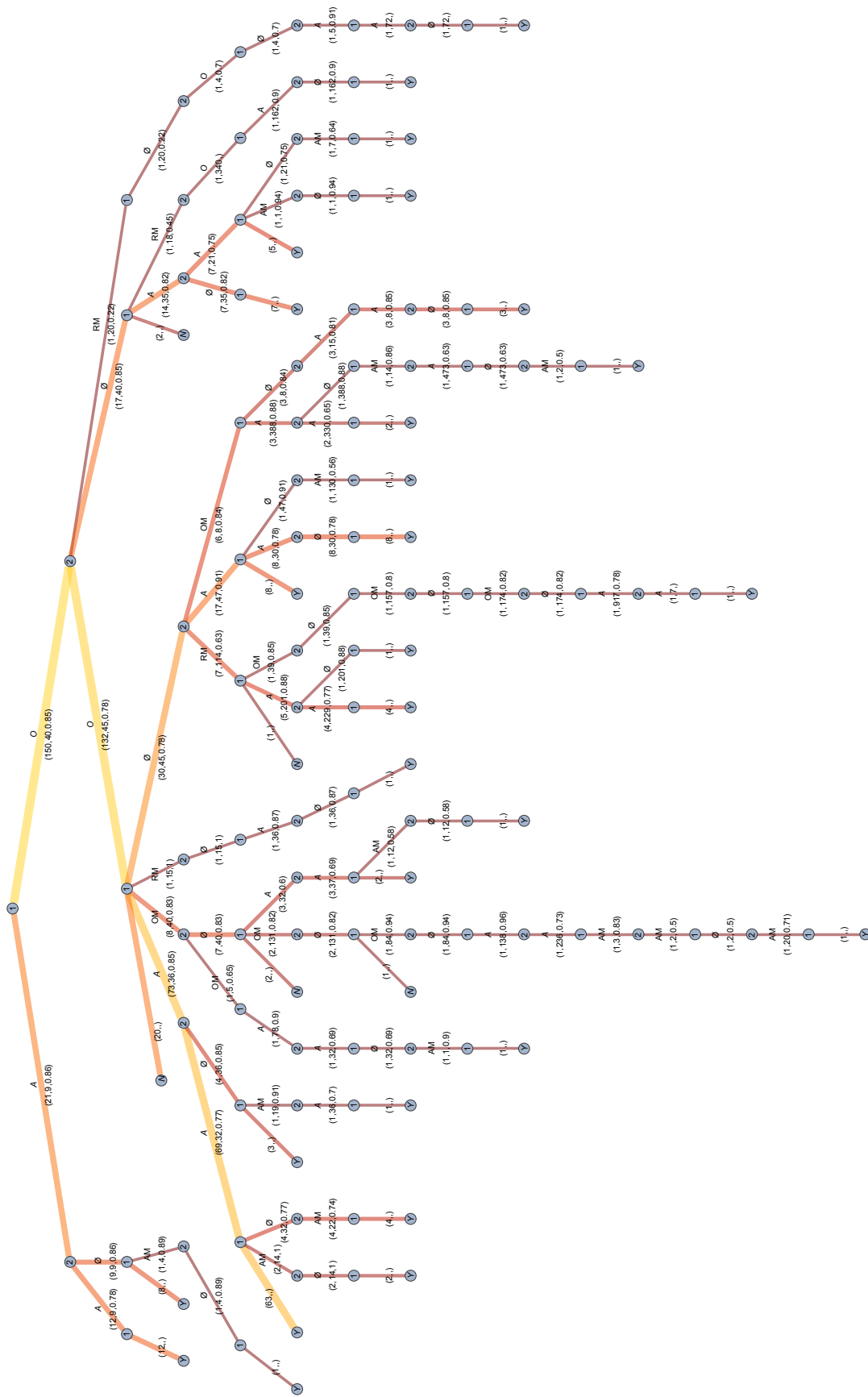


Figure 4: Summary Game Tree. Notes: This summary Game Tree excludes the Request Stage prior to opening of talks, and collapses the 299 simultaneous bilaterals at Torquay into a single representative bilateral; see text for further explanation.

reflect more extensive sequences of offers and counteroffers and/or modifications of agreements. The mean proposed tariffs vary somewhat across the branches of the game tree, and the same is true proceeding down a given branch, but there is no obvious pattern in the proposed tariffs across branches of the game tree and the within-branch changes are often non-monotonic.

Finally, we zoom in on the US to provide a view of the Torquay Round from the perspective of an individual country and the various bilaterals in which it is directly involved. The US was engaged in bilateral negotiations with 24 of its 36 potential negotiating partners.<sup>14</sup> It reached final agreement with 15 of these countries. In Figure 5 we display an overview of the timing and actions – request (R), modification of request (RM), offer (O), modification of offer (OM), withdrawal of offer (OW), agreement (A) and modification of agreement (AM) – for each of the 24 bilateral negotiations involving the US at Torquay. The dates of each action are recorded on the horizontal axis. For each US negotiating partner listed on the vertical axis, the bottom (blue) line displays the actions relating to the US tariff – the offers by the US and the requests coming from its negotiating partners – while the top (red) line displays the actions relating to the foreign negotiating partner’s tariff – the requests by the US and the offers of its negotiating partners. Figure 5 displays 57 dates across the 10 month period of the Torquay Round on which the US and/or at least one of its negotiating partners took an action in their bilateral. As Figure 5 illustrates, most of the dates involve multiple actions across a number of bilaterals.

## 5.2. Stylized Facts

We now record and document six stylized facts relating to GATT bargaining patterns.

**Stylized Fact 1:** *The numbers of back-and-forth offers and counteroffers in any bilateral bargain are relatively small, and for some bargains the initial offers sit dormant on the table for long periods of time and are then finalized with a single modification at the time that other bargains are concluded.*

We noted above in the context of Figure 5 that the US and/or its negotiating partners took actions on 57 separate dates before reaching a conclusion to the round; but Figure 5 also reveals that the amount of “back-and-forth” within any US bilateral is much more limited, often consisting of only a couple of actions by each party over the course of the round and never more than a handful by either. In Table 1 we present evidence from all the Torquay bilaterals

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<sup>14</sup>The countries present at Torquay with which the US did not negotiate were Burma, Ceylon, Chile, Finland, Greece, Liberia, Nicaragua, Pakistan, Philippines, Southern Rhodesia, Syria-Lebanon and Uruguay.



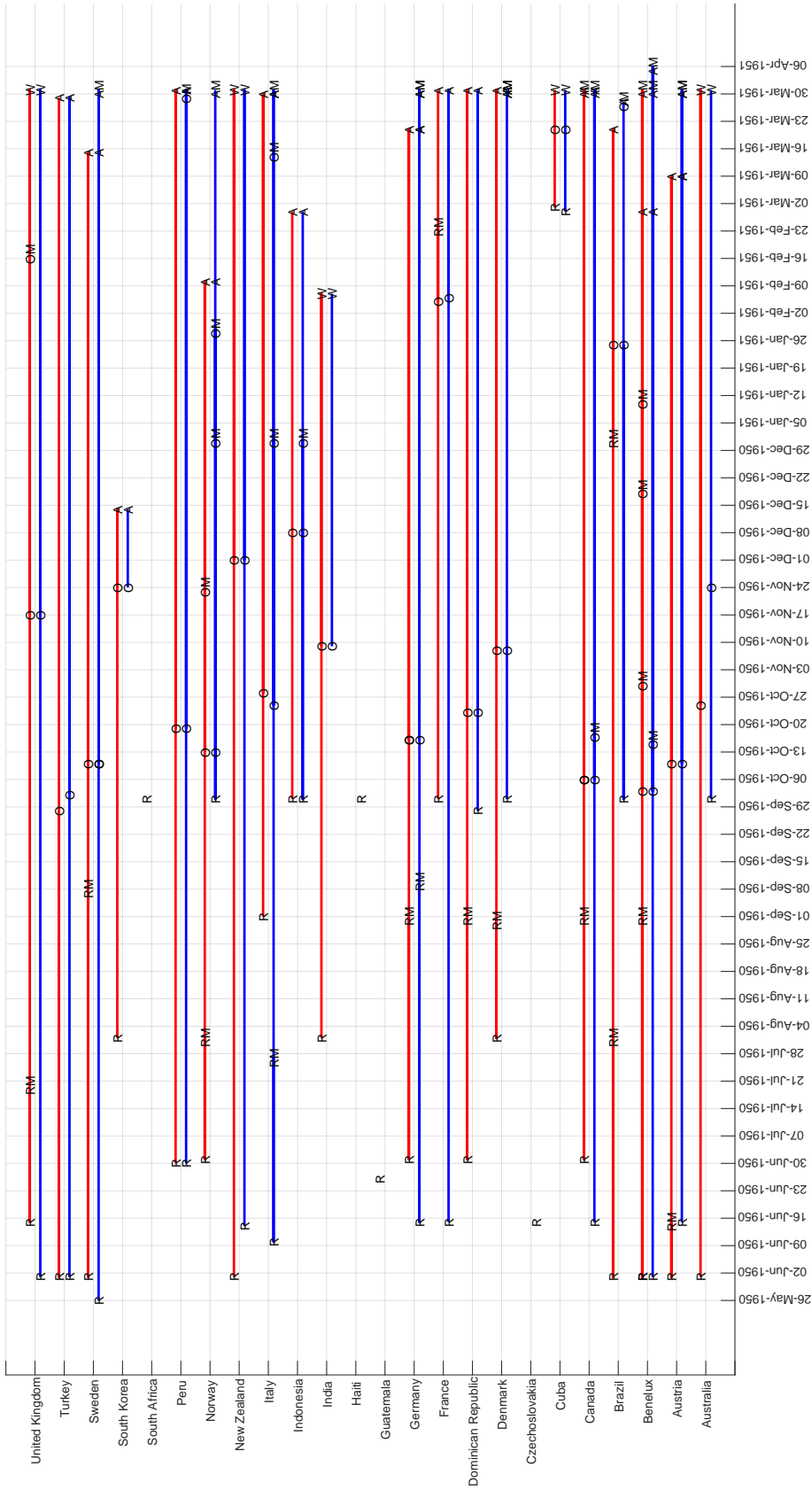


Figure 5: Timing of Actions in the US Torquay Bilaterals. Notes: Time is on the horizontal axis. For each US negotiating partner listed on the vertical axis, the bottom (blue) line displays the actions relating to the US tariff while the top (red) line displays the actions relating to the foreign negotiating partner's tariff. R indicates request. O indicates offer. A indicates agreement. M indicates modification. W indicates withdrawal.

on the amount of back-and-forth offers and counteroffers during negotiations, and confirm that this is a general feature of the round. As Table 1 reveals, on products for which a country made at least one offer in the bilateral, the average number of offers it made in a bilateral on that product is 1.4 and the maximum is 5; for requests the analogous numbers are 1 and 3.<sup>15</sup> Conditional on a final agreement reached on that product in that bilateral, the average number of offers a country made on that product is 1.5 and the maximum is again 5; and for requests the analogous numbers are still 1 and 3. Table 1 also reports the data on the simple counts of offers and counteroffers for a country pair (regardless of which products were contained in the offer). For bilaterals where a country made at least one offer, the average number of offers it made per bilateral is 1.8, with a maximum number of 6, and conditional on a final agreement reached between the two countries in that bilateral the analogous numbers are 2 and 6. And the analogous numbers of requests for a country pair are an average of 1.1 (and 1.2 conditional on a final agreement reached) and a maximum of 3. Some standard models of strategic delay in bargaining (e.g., Admati and Perry, 1987, and Cramton, 1992) predict small numbers of offers and counteroffers, though these models cannot be applied directly to settings of bilateral bargaining with externalities.

Figure 5 also indicates that some US bilateral bargains sit dormant for long periods of time and yet ultimately end in agreement. For example, as Figure 5 records, the US and Denmark exchanged initial offers on 11/8/1950, made no modifications to their requests of or offers to each other after that date, and reached a final agreement on 3/31/1951. Table 1 confirms that this is also a prominent feature of Torquay bilaterals more generally: as reported there, conditional on a final agreement being reached, on average 11.8 weeks elapse between the last offer or modified offer made in a bilateral and the announcement of an agreement. A possible interpretation is that the current proposals (as embodied in the latest offers on the table) contained the elements of a final agreement, but the details of the final agreement hinged on details of other bilaterals that had yet to be concluded. Relatedly, as Figure 5 illustrates for the US bilaterals, a number of the initial offers were not tabled until midway through the round, possibly reflecting issues of sequencing across bilaterals.

These features suggest multilateral linkages across the bilateral bargains. Indeed, the importance of such linkages for understanding the pattern of bargaining at Torquay was emphasized

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<sup>15</sup>For example, a product might be included in an initial offer, and then also be in the set of products that is included in a modified offer, and then later the offer on this product might be withdrawn, in which case we would record that a total of 3 offers were made on this product.

in various accounts at the time.<sup>16</sup> Finally, as Figure 5 illustrates for the US bilaterals and as Table 1 confirms for the Torquay bilaterals generally, there are a number of agreements that are themselves modified late in the round (AM): Table 1 reports that for the average agreement, modifications will apply to 3.5% of the total number of products on which initial agreement was reached. One interpretation of these modifications is that they reflect the kinds of adjustments that stage-4 of the Torquay Protocol anticipated might be necessary as information became available about other agreements that were concluded in the round. Again this points to important multilateral dimensions of the bargaining, whereby large numbers of separate bilateral bargains, each with small numbers of moves, were linked together into an interrelated fabric.

**Stylized Fact 2:** *Once the initial proposals were on the table, the focus of bargaining narrowed to each country's own-tariff-cut offers, and countries responded to imbalances in the outstanding offers primarily by adjusting their own offers rather than by adjusting the requests they had made of their bargaining partners.*

Figure 5 depicts an additional interesting pattern reflected in the US bilaterals: once initial requests and offers (and hence the initial proposals) have been exchanged between the US and its bargaining partners and the bilateral bargaining stage of the Torquay Round begins, virtually all the back-and-forth occurs on offers rather than requests. That is, the US and its bargaining partners chose overwhelmingly (in fact, with only one exception) to make counter-proposals by modifying their own-tariff-cut offers rather than by reissuing or modifying the tariff-cut requests they made of their bargaining partners. This, too, is a general feature of the bilaterals at Torquay: when a country made a counter-proposal at Torquay, 82% of the time it did so by modifying its own-tariff-cut offers, not by modifying the tariff-cut requests it was asking of its bargaining partner.

**Stylized Fact 3:** *While the tariff requests that a country receives and the offers it makes on a given product as a seller of market access seem to conform with what might be expected on the basis of the principal supplier rule, the tariff requests that a country makes and the offers it receives on a given product as a buyer of market access appear to be more narrowly focused than principal supplier considerations alone would warrant.*

Table 2 details the number of products covered in negotiations for a country's own tariff

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<sup>16</sup>For example, in its October 2 coverage of the opening of the Torquay Round negotiations, *The New York Times* (1950a) observed: "There is always a tendency in these meetings for delegations to delay negotiations until they get some inkling as to how bigger ones are going..."

cuts (that is, where the country is a “seller” of market access, recorded as “Sales” in the top panel of Table 2) and the tariff cuts of its bargaining partner (that is, where the country is a “buyer” of market access, recorded as “Purchases” in the bottom panel of Table 2). The first column reports statistics on the unique number of products sold and purchased at Torquay (for example, a unique sale corresponds to a selling-country-and-product identifier, while a unique purchase corresponds to a buying-country-and-product identifier), the second column reports statistics on the total number of product-negotiating-partner-pairs (corresponding to a selling-country-and-buying-country-and-product identifier), and the third column reports the ratio “Total/Unique,” which provides a measure of the average number of bargaining partners per product.<sup>17</sup> The fourth through seventh columns of Table 2 report summary statistics by negotiating partner on the number of products over which they bargained.<sup>18</sup>

Focusing on the third column of Table 2, we may conclude from the first and third rows of the top panel that on average the own-tariff requests received by an importing country selling market access at Torquay and the own-tariff offers made by that country reflect a high degree of concentration across the exporting countries (i.e., the buyers) with which it bargains, with on average 1.25 to 1.3 exporting countries bargaining with an importing country to purchase the importing country’s tariff cut on a given product. Under the assumption that the larger export suppliers of a product into a market are the suppliers usually involved in the bargaining over access to the market for that product, this in turn implies that typically it is the largest 1 or 2 export suppliers into a market on a given product that are engaged in negotiations with the importing country over the tariff in that market, consistent with the sellers of market access at Torquay operating on the basis of the principal supplier rule.<sup>19</sup> But the bottom panel of Table

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<sup>17</sup>Two of the Table 2 entries for “Total/Unique” are less than one, namely the Sales entries corresponding to offers and final concessions with requests. A value less than one for these entries is possible, because for “Unique” these entries represent the number of offers (or final concessions) to *any* country with a request from *any* country, whereas for “Total” these entries represent the number of offers (or final concessions) to *a* country that responded to a request from *that* country, hence it is possible that the former will be greater than the later.

<sup>18</sup>Across the Sales and Purchases numbers reported in Table 2, only the “Unique” and “Total/Unique” columns differ. A Unique sale occurs each time some country sells an HS6 tariff cut to at least one buyer, while a Unique purchase occurs each time some country buys an HS6 tariff cut from at least one seller. The Unique number for Sales will therefore differ from the Unique number for Purchases if sellers sell the same HS6 product-level tariff cut to multiple buyers and/or if buyers purchase the same HS6 product-level tariff cut from multiple sellers. All other columns in Table 2 have identical entries between Sales and Purchases because Table 2 includes all participating countries at Torquay and all sales are also purchases. We will later present data for sub-sets of countries where Sales and Purchases numbers generally differ across all columns, so for consistency across tables we include all columns even when some are redundant.

<sup>19</sup>As noted in section 3, detailed trade statistics were exchanged among the participating countries at Torquay, and we are assembling the relevant documents in electronic form. Once assembled and concorded, this data

2 seems to tell a different story when it comes to the behavior of buyers of market access. In particular, it would be natural to expect that if an exporting country is a principal supplier of a product to one importing country, it is likely to be a principal supplier of that product to many importing countries. And yet, the first and third rows of the bottom panel in Table 3 indicate that on average an exporting country buying market access at Torquay bargains with just 1.5 to 2 importing countries over tariff cuts for its exporters of a given product. It therefore appears unlikely that buyers of market access exploit the full range of their principal supplier status across markets, and therefore likely that something beyond principal supplier status is limiting the cross-country scope of tariff bargaining efforts at Torquay.

Table 3 provides further evidence on this point. This table shows that, for both Sales (i.e., for requests and offers that refer to a country's own tariffs) and Purchases (i.e., for requests and offers that refer to the tariffs of the country's bargaining partners), the modal product was under negotiation with only one partner. At the same time, Table 3 indicates that a significant number of products were at play with multiple numbers of negotiating partners, indicating important direct linkages across negotiations. The left panel indicates that, of the products on which an importing country selling market access received a request, it received a request from only one exporting country on 76% of these products but received requests from more than three exporting countries on only 2% of these products. Similarly, of the products on which the importing country made an offer, it made the offer to only one exporting country on 79% of these products but made the offer to more than three exporting countries on only 1% of these products, with the corresponding percentages for successful offers being 84% and 0.2% respectively. Turning to the right panel of Table 3 we see that, of the products on which an exporting country buying market access made a request, it made its request of only one importing country on 56% of these products and made requests of more than three importing countries on 12% of these products. Similarly, of the products on which the exporting country received an offer, it received the offer from only one importing country on 69% of these products and received an offer from more than three importing countries on 5% of these products, with the corresponding percentages for successful offers being 73% and 4% respectively.

What we have described just above is a rightward shift of the distribution depicted in Table 3 between the left (Sales, own-tariff) and right (Purchases, partner-tariff) panels, as would be

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can be used to assess principal supplier status, but this is a major undertaking that is beyond the scope of the current paper.

expected if a principal supplier of a product in one foreign market is a principal supplier of that product in many foreign markets. But what is surprising is how small this rightward shift is, again indicating that something beyond principal supplier status seems to be limiting the cross-country scope of tariff bargaining efforts at Torquay.

**Stylized Fact 4:** *Substantial numbers of offers are made that were not requested by the country to which the offer is extended. In significant numbers of cases, these offers are made without a request from any bargaining partner.*

Returning to Table 2, we see from the top panel that sellers of market access entertained requests for tariff cuts on 29,341 unique products at Torquay and offered tariff cuts on 15,683 unique products, 11,064 of which correspond to products that were requested by some bargaining partner, and 4,619 of which correspond to products that were not requested by any bargaining partner. And from the bottom panel of Table 2, we see that buyers of market access requested tariff cuts from their bargaining partners on 18,836 unique products and received offers on 12,775 products, 9,224 of which corresponded to products that they had requested, and 3,551 of which corresponded to products that they had not requested. Moreover, of the 19,560 total initial product-level offers that countries made across their bargaining partners, 10,436 of these were made to bargaining partners on products which those bargaining partners had requested, while the remaining 9,124 of these were made to bargaining partners on products which those bargaining partners had not requested.

In the end, as Table 2 reveals, in their role as sellers of market access, countries successfully sold at Torquay 11,106 of the 15,683 unique product-level tariff cuts that they had offered, while in their role as buyers of market access countries requested 18,836 unique product-level tariff cuts and successfully purchased 9,064 (with the difference between successful sales and successful purchases of unique product-level tariff cuts reflecting the extent of sales of the same product-level tariff cut to multiple buyers and the extent of purchases of the same product-level tariff cut from multiple sellers). Most, but not all, products that reached a final agreement were initially requested by some buyer: 28.5% of the unique product level agreed tariff cuts that were sold at Torquay were not requested by any buyer, while 20.5% of the unique product level agreed tariff cuts bought at Torquay were not requested of any seller.

**Stylized Fact 5:** (a) *Offers for given import products were rarely deepened over the course of the negotiations; instead, adjustments typically involved a country “shopping around” its initial*

*tariff-cut offers and ultimately reducing as necessary the depth of its overall (multilateral) offer. (b) In addition, when a country chose to reduce the depth of its offers, it did so with adjustments on the “extensive margin” (i.e., by removing products from its offers), not on the “intensive margin” (i.e., by raising the level of the tariff cut offered).*

Table 4 describes the magnitude of the tariff concessions requested and offered at Torquay for Sales (i.e., for requests and offers that refer to a country’s own tariffs) and Purchases (i.e., for requests and offers that refer to the tariffs of one’s bargaining partners). The top three rows of Table 4 condition on finalized agreed concessions being reached, and report statistics by product-negotiating partner pairs (and hence, with all participating Torquay countries represented in Table 4 the Sales and Purchases numbers are identical). As the top three rows reveal, the average tariff cuts initially requested of a country by its bargaining partners would have reduced the tariffs on which requests were made to 55.2% of their existing levels, the average tariff cuts initially offered by the country to its bargaining partners would have reduced the tariffs on which offers were made to 82% of their existing levels, and the final tariff concessions agreed to by the country on average reduced these tariffs to 81.1% of their existing levels. A striking feature implied by these last two numbers is the apparent lack of significant deepening of offers within a product-negotiating partner pair between the initial tariff cut offered and the final tariff cut agreed.

The bottom three rows of Table 4 report analogous statistics, but focus only on the sellers of market access and do not condition on finalized agreed concessions being reached or on the country making the request of or receiving the offer from the seller. The bottom two rows of the table confirm that sellers of market access at Torquay engaged in very little deepening of their product level tariff offers between the earliest offer they made on that product (to any bargaining partner) and the last offer they made on that product (to any bargaining partner) prior to the round’s conclusion.<sup>20</sup>

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<sup>20</sup>Our focus on the averages reported in Table 4 ignores the fact that the standard deviations are fairly substantial. But we believe that the size of the standard deviation is largely being driven by outliers associated with the maximum values listed in the table, which are themselves explained by our aggregation to the HS6 level. As one illustrative example, in the US-German bilateral, the initial US offer made on 10/16/1950 for “Nail, barbers’ and animal clippers, and blades: valued at more than \$1.75 per dozen,” which falls into HS6 851020, was to bind its tariff at a 10% ad valorem level, and this same tariff level was included in its final offer dated 3/21/1951. But the US subsequently modified its final offer to Germany on 3/31/51, and in that modification it (a) maintained its offer of a 10% ad valorem tariff on “Nail, barbers’ and animal clippers, and blades: valued at more than \$1.75 per dozen,” but also added (b) an offer to bind its tariff on “Nail, barbers’ and animal clippers: valued not over 50 cents per dozen” at the level of 1.75% ad valorem and (c) an offer to

Finally, we return to Table 2 and now focus on the fourth row of the Sales and Purchases panels, which describe the degree of adjustments to offers at the extensive margin over the course of the Torquay Round.<sup>21</sup> After the initial offer and prior to a final agreement, sellers of market access modified 1,292 of their 15,683 unique product-level offers (or roughly 8% of the products on which an initial offer was made), while buyers of market access modified 1,313 of their 12,775 unique product-level offers (or roughly 10% of the products on which an initial offer was made).

Together these tables indicate that the most important dimension for negotiations was on the extensive margin, that is dropping and/or adding products from the negotiation, whereas there was minimal adjustment taking place on the intensive margin, that is, in the size of the tariff cuts being offered on any particular product. And as Table 2 records, roughly 71% of the unique product-level offers made it into final concessions at Torquay, indicating that these extensive margin adjustments appear to represent the “shopping around” of a fixed set of offers across bargaining partners which ultimately led to an extensive-margin adjustment in the overall depth of successful offers through the removal of products.<sup>22</sup>

Figure 6 illustrates the extensive margin movement in one detailed example, the US-Italy bilateral. Each colored line corresponds to one product. The x-axis represents time. As time goes on, the US modifies its offer by adding and removing products. Similarly, Italy’s final offer to the US removes many products from its initial offer, while adding a handful. Revisiting the detailed example (the US bilaterals on lawn mowers) contained in Figure 2 illustrates the lack of intensive margin adjustment there, as embodied in the horizontal lines that connect each offer (O) that ends in agreement (A).

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bind its tariff on “Nail, barbers’ and animal clippers: valued over 50 cents but not over \$1.75 per dozen” at the level of 7.5% ad valorem, and both of these product categories also fall into HS6 851020. Hence, in this case our HS6 measure would indicate substantial intensive margin movement of the HS6 851020 tariff between the initial US offer and the (modified) final US tariff, when in fact at the 10 digit product level there is no intensive margin movement and only an extensive margin movement.

<sup>21</sup>As the second rows of the top and bottom panels of Table 2 indicate, after the initial request and prior to final agreement, sellers of market access faced modified requests on approximately 8% of the unique products on which they received initial requests, and buyers of market access modified their requests on approximately 11% of the products for which they made initial requests. Recalling however our earlier observation in the context of Stylized Fact 2 that only a small fraction of the overall modifications of proposals subsequent to the exchange of initial offers and the beginning of bilateral bargaining took the form of modifications of requests, it follows that subsequent to the exchange of initial offers virtually all of the extensive margin adjustments occur on the offer side rather than the request side, which is why we do not emphasize the extensive margin adjustment of requests in the text.

<sup>22</sup>The 71% “success rate” of offers reflects both extensive-margin adjustments to proposals that were made over the course of the bargaining and that are documented in Table 2 and the implications of failed bargains.



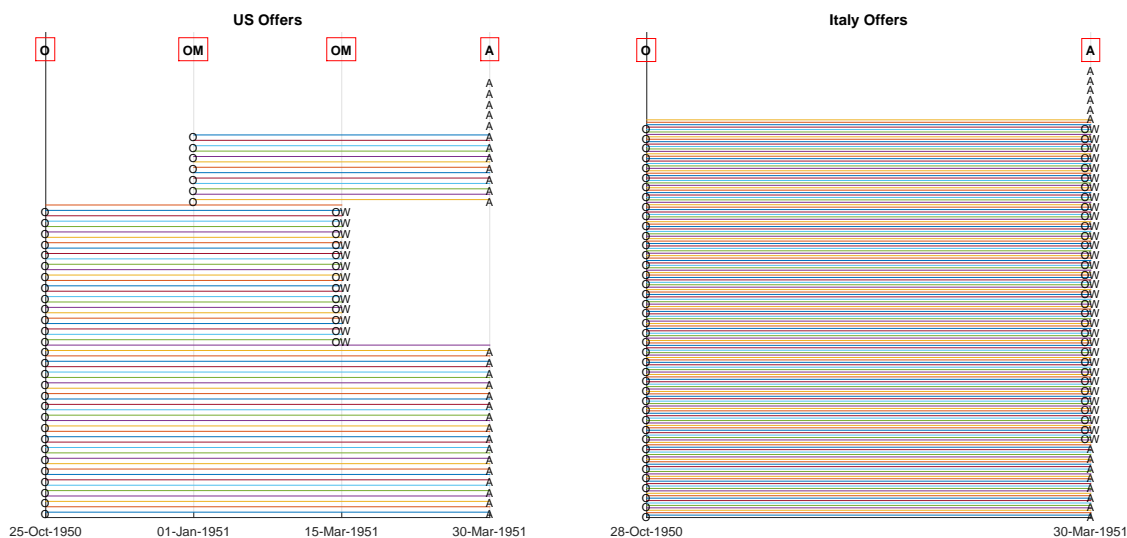


Figure 6: Extensive margin adjustments in US negotiations with Italy.

Notes: Each colored line corresponds to one product. The horizontal axis represents time. O indicates offer. A indicates agreement. M indicates modification. W indicates withdrawal.

**Stylized Fact 6:** *There is substantial two-way bargaining within narrow product categories, and significant numbers of these two-way bargains occur within a single bilateral.*

Finally, in Table 5 we present information on the degree of “two-way” exchanges of tariff cuts for similar products. The countries participating at Torquay were both fielding and seeking requests for tariff cuts on the same product category for 6,677 products, they made offers on 4,531 products for which they had also made a request, and they received offers on 4,742 products on which they had also received a request, with 2,391 of these two-way exchanges occurring within the same bilateral. Hence, for roughly a quarter of the products on which the participating countries at Torquay received requests or made offers, they were simultaneously making requests of their trading partners and receiving offers on those same products, and a third of these involved two-way exchanges within the same bilateral.

## 6. Interpreting Tariff Bargaining at Torquay

Our examination of the Torquay Round bargaining records yields a set of stylized facts that can help guide modeling efforts aimed at settings characterized by bilateral bargaining with externalities. Here we emphasize a number of these stylized facts that lend support to two

features that are seen by GATT practitioners and legal scholars as hallmarks of the tariff bargaining that occurred in the early GATT rounds. A first feature is the surprising lack of strategic behavior among the participating governments. A second feature is the presence of an important multilateral element to the bilateral bargains.

Surveying the bargaining techniques used by countries over the first 5 GATT rounds of request-offer tariff negotiations, Curzon (1966) comments on the lack of strategic behavior among GATT contracting parties:

...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. (p. 74)

The lack of strategic behavior described by Curzon is supported by our findings that offers of tariff cuts for given import products were rarely deepened over the course of the negotiations (Stylized Fact 5a), and that once the initial proposals were on the table the focus of bargaining narrowed to each country's own-tariff-cut offers, with countries "shopping around" their initial tariff-cut offers and responding to imbalances in the outstanding offers by adjusting their own offers rather than reissuing or modifying the tariff-cut requests they were making of their bargaining partners (Stylized Fact 2).

And while GATT tariff negotiations occurred bilaterally, GATT practitioners place great emphasis on the role that GATT played in allowing countries to relax their need for strict bilateral reciprocity ("balance") in negotiations and focus instead on achieving reciprocity on a multilateral basis. As one early GATT report put it (see also Curzon, 1966, pp. 75-77):

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 in the ICITO report is that GATT rounds made it possible for governments to *exchange* externalities across bilaterals in a balanced way that allowed them to maintain multilateral reciprocity. An important multilateral element to the bilateral bargains is suggested by our finding that, while the numbers of back-and-forth offers and counteroffers in any bilateral bargain are small, for some bargains the initial offers sit dormant for long periods of time and are then finalized with a single modification at the time that other bargains are concluded (Stylized Fact 1).

In this section we augment the basic framework developed in section 2 with additional institutional structure, and through this lens we suggest an interpretation of the core bargaining features emphasized above. In particular, we argue that these core features are broadly consistent with what would be expected according to our framework, if governments make dominant-strategy proposals that adhere strictly to the twin institutional constraints of MFN and multilateral reciprocity.<sup>23</sup>

### **6.1. Tariff Bargaining under Reciprocity and MFN**

Reciprocity and MFN are widely viewed as pillars of the GATT/WTO architecture. Here we focus on the implications of reciprocity and MFN for tariff bargaining and thus the GATT

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<sup>23</sup>Bagwell and Staiger (2016a) develop the formal foundations for this view.

bargaining data, and we show that these institutional constraints can dramatically simplify the tariff bargaining problem. First, building on the two-country model in section 2, we describe how strict adherence to reciprocity simplifies strategic considerations and results in a dominant bargaining strategy. Second, building on the multi-country version of the model in section 2, we confirm as well that strict adherence to reciprocity and MFN neutralizes third-party externalities. But we also point out a potential cost: if GATT bargaining partners are asymmetric in a sense described below, then strict adherence to reciprocity and MFN also prevents governments from reaching the efficiency frontier. Finally, we examine the relationship between bilateral and multilateral reciprocity when MFN is satisfied.

**Reciprocity** We start with a review of the basic properties of reciprocity. For this purpose we again paraphrase the treatment in Bagwell and Staiger (2010a), and refer readers there for details. 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. The notion of reciprocity arises in two places in GATT. First, as we noted in section 3, governments seek a “balance of concessions” as a norm of negotiations, so that there is a rough equivalence between the market access value of the tariff cuts offered by one government and the concessions won from its trading partners. Second, when a government seeks to renegotiate, modify or withdraw a previous concession as an original action, GATT Article XXVIII permits affected trading partners to withdraw “substantially equivalent concessions,” and thereby to retaliate in a reciprocal manner. Hence, GATT’s reciprocity principle describes a fixed terms-of-exchange rule (applied to increases and decreases) for negotiated market access, and fixes the terms of exchange at one-for-one.<sup>24</sup>

Continuing with the two-country model developed in section 2, we now state a formal definition of reciprocity. Suppose that, beginning from an initial pair of tariffs,  $(\tau^0, \tau^{*0})$ , a tariff negotiation results in a change to a new pair of tariffs,  $(\tau^1, \tau^{*1})$ . Denoting the initial world and domestic local prices as  $\tilde{p}^{w0} \equiv \tilde{p}^w(\tau^0, \tau^{*0})$  and  $p^0 \equiv p(\tau^0, \tilde{p}^{w0})$ , and the new world and domestic

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<sup>24</sup>The adding-up constraint imposed by market clearing makes a one-for-one terms of exchange inevitable as long as governments are committed to adopting a common terms of exchange for market access applied uniformly across all governments. See Bagwell and Staiger (2016b) for elaboration on this point. We note also that the application of GATT’s reciprocity principle in circumstances where a government modifies or withdraws a previous concession extends beyond Article XXVIII to include the case of temporary safeguard measures under GATT Article XIX and responses to nullification or impairment under GATT Article XXIII. For shorthand we continue to refer only to GATT Article XXVIII in the text.

local prices as  $\tilde{p}^{w1} \equiv \tilde{p}^w(\tau^1, \tau^{*1})$  and  $p^1 \equiv p(\tau^1, \tilde{p}^{w1})$ , we say that the tariff changes conform to *the principle of reciprocity* provided that

$$\tilde{p}^{w0}[M(p^1, \tilde{p}^{w1}) - M(p^0, \tilde{p}^{w0})] = [E(p^1, \tilde{p}^{w1}) - E(p^0, \tilde{p}^{w0})], \quad (6.1)$$

where changes in trade volumes are valued at the existing world price. We next use the domestic balanced trade condition in (2.1) to establish that (6.1) may be rewritten as

$$[\tilde{p}^{w1} - \tilde{p}^{w0}]M(p^1, \tilde{p}^{w1}) = 0. \quad (6.2)$$

According to (6.2), reciprocity can be given a simple and striking characterization: mutual changes in trade policy conform to the principle of reciprocity if and only if they leave the world price unchanged. With this characterization in hand, we next consider how strict adherence to reciprocity simplifies the complexity of the bargaining problem.

We examine an illustrative model. Let us take the pre-negotiation tariff pair as exogenous, with the Nash tariffs being the natural candidate. The initial tariff pair fixes a particular iso-world-price line, where as we illustrate below any such line is upward sloping in a graph with tariffs on the axes. Following Bagwell and Staiger (1999), governments simultaneously make tariff proposals, where any such proposal conforms to reciprocity and thus specifies a tariff pair  $(\tau, \tau^*)$  that lies along the fixed iso-world-price line. If the proposals agree, then the common proposal is implemented; otherwise, the proposal with the higher tariff pair (i.e., the lowest trade volume) is implemented. This model clearly captures the reciprocal nature of tariff liberalization negotiations in GATT; in addition, the structure of the game captures in a short-hand way the potential for renegotiation under GATT Article XXVIII, since neither government can be forced to import a volume greater than implied by its proposal.<sup>25</sup>

As established by Bagwell and Staiger (1999), strict adherence to reciprocity ensures that it is a dominant strategy for each government to propose the tariff pair that if implemented would deliver its preferred trade volume along the given iso-world-price line. Indeed, once the

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<sup>25</sup>Under GATT Article XXVIII, if a negotiated tariff pair induces more trade volume than one government desires given the world price, then that government could raise its tariff, knowing that the other government would respond in reciprocal fashion. Our model captures this possibility in a short-hand way, by assuming that the proposal with the highest tariff pair is ultimately implemented. For more on the trade-effects interpretation of reciprocity in GATT/WTO practice in line with our discussion above, see Hoda (2001) and the Appellate Body Opinion in WTO (2004). Limao (2006, 2007) and Karacaovali and Limao (2008) provide empirical evidence that actual tariff bargaining outcomes in the GATT/WTO conform to a reciprocity norm. See also US International Chamber of Commerce (1955) for particular evidence on the importance of the reciprocity norm for the results of the Torquay Round.

iso-world-price line is fixed, this conclusion holds whether or not a government has private information about its preferred local price. In this sense, strict adherence to reciprocity can induce governments to truthfully reveal their “politically optimal reaction curves” (as defined in section 2). The key features of the argument are illustrated in Figure 7 (which is an adaptation of Figure 4 in Bagwell and Staiger, 1999).

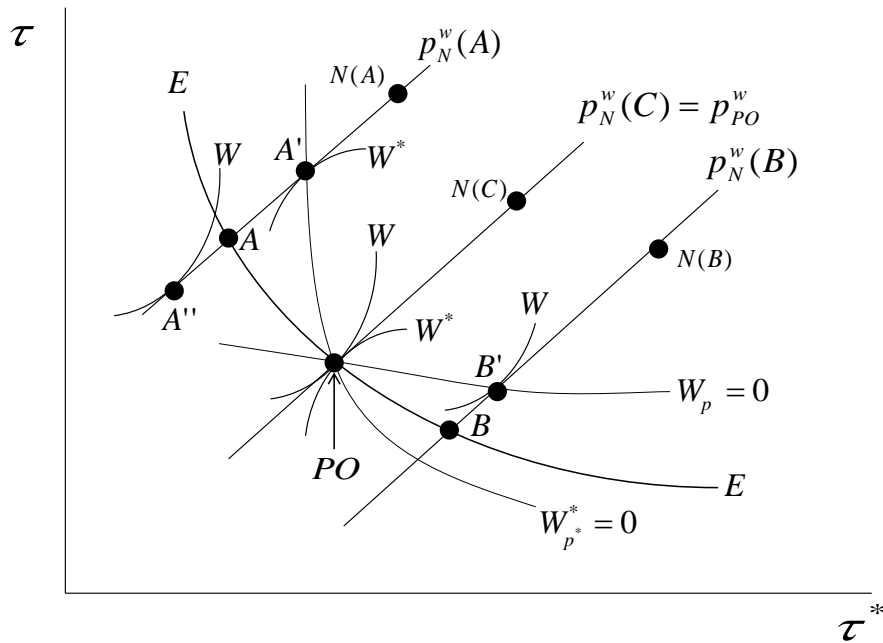


Figure 7: Reciprocity and Politically Optimal Reaction Curves

In the symmetric case, defined as when the Nash trade war leaves countries facing the same terms of trade as would prevail at their politically optimal tariffs, strict adherence to reciprocity leads to an efficient outcome. To develop this point, we refer to Figure 7, which depicts  $\tau$  on the vertical axis and  $\tau^*$  on the horizontal axis. The symmetric case is illustrated by the Nash point labeled  $N(C)$ , which lies on the same iso-world-price locus as does the politically optimal point, which is labeled  $PO$  and lies below  $N(C)$ . In Figure 7 we label as  $p_N^w(C) = p_{PO}^w$  the iso-world-price locus passing through both  $N(C)$  and  $PO$ . As reciprocity fixes the world price, the two governments bargain along the iso-world-price locus  $p_N^w(C) = p_{PO}^w$ . The only dimension

on which the governments negotiate is the volume of trade to be exchanged at the fixed world price (and trade volume is increasing as we move downward along the locus  $p_N^w(C) = p_{PO}^w$ ). At this fixed world price, the domestic government's desired trade volume is determined where its politically optimal reaction curve (labeled as  $W_p = 0$ ) intersects the iso-world-price locus  $p_N^w(C) = p_{PO}^w$ ; and similarly the foreign government's desired trade volume is determined where its politically optimal reaction curve (labeled as  $W_{p^*}^* = 0$ ) intersects the iso-world-price locus  $p_N^w(C) = p_{PO}^w$ . In the symmetric case, these two points of intersection correspond to the single point which defines the political optimum (the point PO). Hence, according to Figure 7, the governments would agree on the desired volume of trade. Since it is a dominant strategy for each government in our game to propose the tariff pair that delivers its desired trade volume (i.e., to truthfully reveal its politically optimal reaction curve), it follows that the outcome of the bargaining game is the politically optimal tariff pair. Thus, in the symmetric case, strict adherence to reciprocity ensures that the bargaining outcome yields an efficient outcome corresponding to the political optimum.

Now consider an asymmetric environment. Let us begin with point N(A). As in the symmetric case, the fact that reciprocity fixes the world price implies that the two governments bargain along the iso-world-price locus passing through N(A), which we label  $p_N^w(A)$ . At this fixed world price, the domestic government's desired trade volume is determined where its politically optimal reaction curve  $W_p = 0$  intersects the iso-world-price locus  $p_N^w(A)$ ; and similarly the foreign government's desired trade volume is determined where its politically optimal reaction curve  $W_{p^*}^* = 0$  intersects the iso-world-price locus  $p_N^w(A)$ . But the two governments no longer agree on the desired volume of trade; the foreign government's desired trade volume (labeled as  $A'$ ) is less than the desired trade volume of the domestic government (labeled  $A''$ ). In practice, this is where Article XXVIII comes in: any bargain that leaves the governments on a point along the iso-world-price locus  $p_N^w(A)$  and which is below  $A'$  will be renegotiated at the request of the foreign government up to the point  $A'$ . In terms of our game, it is a dominant strategy for each government to propose the tariff pair that delivers its desired trade volume (i.e., to truthfully reveal its politically optimal reaction curve), and so the outcome of the bargaining process is the point  $A'$ . If GATT bargaining partners are asymmetric in the sense that we have described above, then the strict adherence to reciprocity that is necessary for this result will itself prevent governments from reaching the efficiency frontier (labeled  $EE$  in Figure 7).<sup>26</sup>

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<sup>26</sup>Indeed, as the discussion in US International Chamber of Commerce (1955, p. 33) well illustrates, the issue

**Reciprocity with MFN** We next consider MFN, and describe how reciprocity and MFN together can neutralize bargaining externalities across bargaining pairs. To develop this point, we build on the three-country version of the model in section 2. For this purpose we once again paraphrase the treatment in Bagwell and Staiger (2010a), and refer readers there for details.

Consider the case where foreign-country 2 is not involved in the negotiations and keeps its tariff unaltered. In the presence of MFN, the domestic government and the government of foreign-country 1 can still negotiate a reciprocal reduction in their tariffs  $\tau$  and  $\tau^{*1}$  which leaves the terms of trade  $\tilde{p}^w(\tau, \tau^{*1}, \tau^{*2})$  unaltered but reduces  $p$  while raising  $p^{*1}$ , and which therefore provides these two countries with greater trade volume. But recall now that in foreign-country 2 we have the relationship  $p^{*2} = p^w/\tau^{*2}$ . It follows that, with  $\tau^{*2}$  held fixed, if the negotiation between the domestic country and foreign-country 1 abides by MFN (so that a single equilibrium world price  $\tilde{p}^w$  prevails) and reciprocity (so that  $\tilde{p}^w$  is unaltered) then  $p^{*2}$  and therefore  $W^{*2}(p^{*2}, \tilde{p}^w)$  and foreign-country 2's trade volume are unaltered by these negotiations as well. In abiding by the principles of MFN and reciprocity, the domestic government and the government of foreign-country 1 have thus engineered a bilateral tariff bargain without third-country spillovers.<sup>27</sup>

Intuitively, the reciprocity principal balances two opposing third-party externalities that are present in bilateral MFN tariff bargaining: a *negative* externality on third parties arises when foreign country 1 cuts its tariff on imports of good  $y$  in a bilateral bargain with the home

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of asymmetries between “high-tariff” and “low-tariff” countries was increasingly emphasized as an impediment to further negotiations with each passing GATT round. If governments have private information about their political preferences, then similar conclusions hold with respect to the ex post efficiency of bargaining outcomes, where the symmetric case then corresponds to the situation in which the pre-negotiation tariff pair lies along the same iso-welfare-price line as the ex post politically optimal tariffs. We conjecture that analogous arguments apply as well if instead the private information that governments possess concerns their levels of impatience or threat points. Throughout, we assume that governments are sufficiently patient that the negotiated tariffs satisfy self-enforcement constraints, and our conjecture is understood in this context. Finally, governments might also have private information about the form of import demand and/or export supply functions, in which case they might not agree as to the tariff pairs that satisfy the principle of reciprocity. We leave consideration of this possibility for future work.

<sup>27</sup>These and related points are developed in Bagwell and Staiger (2005, 2010b). An interesting question relates to the role of the principal supplier rule in GATT/WTO bargaining (which as we have described above directs the negotiations to emphasize the requests of the largest suppliers) if reciprocity and MFN induce the features we emphasize above. Bagwell and Staiger (2016a) describe how the principal supplier rule might be viewed as a rationing rule in the context of the mechanism they characterize. Beyond this, it seems that the principal supplier rule might play an additional important role in this environment: where strict reciprocity is not feasible – because for example the dynamic effects of tariff liberalization make it difficult to achieve reciprocity in the short run even for tariff cuts that do achieve reciprocity in the long run – and hence some spillovers become inevitable, arranging bargains in accordance with the principal-supplier rule is a natural technique for minimizing third-party spillovers.



country, and the externality is transmitted to competing importers of good  $y$  (foreign country 2); at the same time, a *positive* third-party externality arises when the home country cuts its tariff on imports of good  $x$  in a bilateral bargain with foreign country 1 and is transmitted to competing exporters of good  $x$  (foreign country 2). If the home country and foreign country 1 engage in a bilateral MFN tariff bargain that cuts the tariff of foreign country 1 and the tariff of the home country in a way that just *balances* these two opposing third-party externalities, they can then neutralize the third-party externality of their bilateral tariff bargain. This balance is precisely what GATT's principle of reciprocity achieves in a multi-country MFN world.

In this general manner, reciprocity and MFN together can neutralize bargaining externalities across bargaining pairs, while at the same time eliminating strategic considerations and generating dominant strategy selections for governments, thereby converting a strategically complex multilateral bargaining problem into a comparatively straightforward collection of bilateral bargains, where each bilateral bargain is reminiscent of the situation depicted in Figure 7. In the presence of these institutional constraints, a country would offer for a given import good the tariff that generated its preferred trade volume for a fixed terms of trade (say, for the home country an offer of the level of  $\tau$  associated with the point  $A''$  in Figure 7), and would match this offer with a request that its bargaining partner reciprocate (a request that the foreign country set  $\tau^*$  at the level associated with the point  $A''$  in Figure 7), with the expectation that an unfilled request (if, say, the foreign country offered a level of  $\tau^*$  and requested a level of  $\tau$  associated with the point  $A'$  in Figure 7) would lead to a reduction in the depth of its offer (and a final agreement at the tariffs corresponding to the point  $A'$  in Figure 7).

Through the lens of the terms-of-trade theory therefore, MFN and reciprocity can be interpreted as the key GATT institutional features that made the convention described in the Curzon quote above a dominant bargaining strategy for the participating countries at Torquay. Still, as we have pointed out, if GATT bargaining partners are asymmetric, then the strict adherence to reciprocity and MFN that is necessary for these results will itself prevent governments from reaching the efficiency frontier. From this perspective, the twin pillars of reciprocity and MFN may be seen as providing governments with a pragmatic solution to what might otherwise have been an insurmountably complicated bargaining problem.<sup>28</sup>

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<sup>28</sup>We have described these results in a simple 2-good model, and it remains to demonstrate that they extend to a many-good setting of the kind that would more accurately describe the GATT bargaining environment. An added benefit of the many-good extension is that it would allow an investigation into whether Stylized Fact 5b could be understood from this perspective. We believe that the key features can be extended to

**Multilateral Reciprocity** We now illustrate and examine the distinction between bilateral and multilateral reciprocity. As we noted above and describe further in section 7, this distinction was emphasized in GATT writings at the time of the early rounds. After defining and illustrating multilateral reciprocity, we specify a multilateral bargaining setting and argue that each country again proposes for itself a tariff that corresponds to its politically-optimal-reaction-curve tariff when countries use dominant strategies, provided that tariff proposals satisfy MFN as well as *multilateral* - but not necessarily *bilateral* - reciprocity.<sup>29</sup>

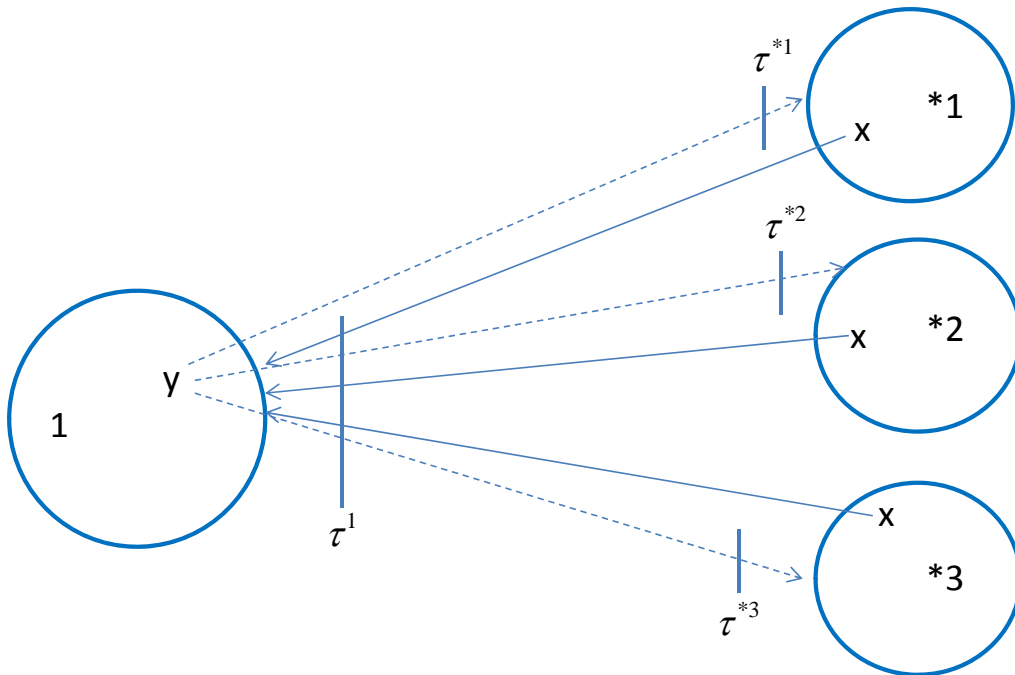


Figure 8: Multilateral Reciprocity

We begin by illustrating the distinction between bilateral and multilateral reciprocity. To this end, we consider a four-country extension of the model described in section 2. Figure 8 illustrates the pattern of trade and tariff protection for the domestic country 1 and its three foreign trading partners \*1, \*2 and \*3. In line with our earlier discussion, we assume that the equilibrium world price is decreasing in the domestic country tariff and increasing in each of such environments along the lines of Bagwell and Staiger (2002, Appendix B), but this extension remains an important task for future research.

<sup>29</sup>As we discuss in greater detail below, our discussion here draws on formal analysis found in Bagwell and Staiger (2016a).

the foreign country tariffs:

$$\tilde{p}^w \equiv \tilde{p}^w \overset{(-)}{\tau^1}, \overset{(+)}{\tau^{*1}}, \overset{(+)}{\tau^{*2}}, \overset{(+)}{\tau^{*3}}.$$

For purposes of illustration, we suppose that domestic country 1 is engaged in a bilateral bargain with foreign country \*1, and also engaged in a bilateral bargain with foreign country \*2, but not with foreign country \*3. Let the initial tariff vector be given as  $(\hat{\tau}^1, \hat{\tau}^{*1}, \hat{\tau}^{*2}, \hat{\tau}^{*3})$  and suppose that, in combination with the initial tariff level  $\hat{\tau}^{*3}$ , the three new tariff levels  $\bar{\tau}^1$ ,  $\bar{\tau}^{*1}$  and  $\bar{\tau}^{*2}$  (with  $\bar{\tau}^1 < \hat{\tau}^1$ ,  $\bar{\tau}^{*1} < \hat{\tau}^{*1}$  and  $\bar{\tau}^{*2} < \hat{\tau}^{*2}$ ) would preserve the world price at its initial level, so that  $\tilde{p}^w(\bar{\tau}^1, \bar{\tau}^{*1}, \bar{\tau}^{*2}, \hat{\tau}^{*3}) = \tilde{p}^w(\hat{\tau}^1, \hat{\tau}^{*1}, \hat{\tau}^{*2}, \hat{\tau}^{*3})$ .

We first illustrate a path from the initial to new tariffs that is characterized by bilateral reciprocity between domestic country 1 and each of its two bargaining partners. Suppose the domestic country starts with foreign country \*1 and negotiates a reciprocal deal, in which the domestic country lowers its tariff from  $\hat{\tau}^1$  to  $\tilde{\tau}^1$  in exchange for a reciprocal reduction in the tariff of foreign country \*1 from  $\hat{\tau}^{*1}$  to  $\bar{\tau}^{*1}$ , where the exchange preserves the level of  $\tilde{p}^w$ . The domestic country could then turn to foreign country \*2 and negotiate an additional reciprocal deal, in which the domestic country agrees to a further lowering of its tariff from  $\tilde{\tau}^1$  to  $\bar{\tau}^1$  in exchange for a reciprocal reduction in the tariff of foreign country \*2 from  $\hat{\tau}^{*2}$  to  $\bar{\tau}^{*2}$ , again preserving the level of  $\tilde{p}^w$ . Each of the just-described bilaterals satisfies reciprocity (and each therefore leaves the level of  $\tilde{p}^w$  unchanged), and hence the bargain described conforms to *bilateral reciprocity*, in the sense that the bilateral between the domestic country and foreign country \* $i$  involves a reciprocal exchange of tariff cuts between the domestic country and foreign country \* $i$ , for  $i = 1, 2$ .<sup>30</sup> Notice further that, since the bilateral negotiations leave the world price unaltered, they do not affect foreign country \*3, and thus do not give rise to a free-rider problem.

We next consider an alternative path from the initial to new tariffs in which bilateral reciprocity fails but multilateral reciprocity holds. In its bilateral with foreign country \*1, suppose that the domestic country agrees to lower its tariff from  $\hat{\tau}^1$  to  $\bar{\tau}^1$  in exchange for a reduction in the tariff of foreign country \*1 from  $\hat{\tau}^{*1}$  to  $\bar{\tau}^{*1}$ . The tariff changes agreed to in this bilateral would by themselves result in a rise in the level of  $\tilde{p}^w$ , as at the existing world price foreign country \*1 would experience a smaller increase in the volume of its exports than the increase in the volume of its imports: these tariff changes are *not* bilaterally reciprocal. In its bilateral with

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<sup>30</sup>The procedure we describe here corresponds to the so-called “split concession” procedure often utilized by the US in its sequential bilateral tariff bargains under the Reciprocal Trade Agreements Act that predated GATT (see Beckett, 1941, p. 23).

foreign country \*2, suppose that the domestic country offers no further tariff cut but foreign country \*2 agrees to lower its tariff from  $\hat{\tau}^{*2}$  to  $\bar{\tau}^{*2}$ . The tariff changes agreed to in this bilateral would by themselves result in a drop in the level of  $\hat{p}^w$ , as at the existing world price foreign country \*2 would experience a greater increase in the volume of its exports than the increase in the volume of its imports: these tariff changes are *not* bilaterally reciprocal either. Nevertheless, taken together these two bilaterals satisfy *multilateral reciprocity*, as in combination they do leave the world price unaltered; that is, both foreign country \*1 and foreign country \*2 experience an equal increase in the volume of their exports and imports once each takes account of the indirect trade effects associated with the tariff changes negotiated in the other bilateral. Further, with the world price unaltered by the combination of bilaterals, a free-rider problem does not arise, as foreign country \*3 is again unaffected by the bilaterals.

Bagwell and Staiger (2016a) provide a formal analysis of dominant-strategy arguments in the multi-country setting. For a three-country general equilibrium model (with one domestic country and two foreign countries), they consider a game in which the three countries take as given the initial tariff vector and the accompanying world price, and then make simultaneous tariff proposals. A strategy for each country is a proposal concerning its own tariff and that of its trading partner(s), where a proposal must satisfy MFN and multilateral reciprocity (i.e., if accepted, the proposed tariffs would maintain the initial world price). Since the foreign countries do not trade with one another, a proposal from a foreign country leaves the tariff of the other foreign country at its initial value. As in the two-country model above, each country’s proposal is associated with an “implied import volume” for itself. Bagwell and Staiger then construct a simple mechanism that takes the three proposals and assigns a vector of tariffs. The tariff vector comprised of each country’s own-tariff proposal is assigned if the proposals agree.<sup>31</sup> If the proposals do not agree, they require that the constructed mechanism assigns a vector of tariffs that maximizes the value of trade volume subject to maintaining the initial world price and not forcing any country to import a volume in excess of its implied import volume.<sup>32</sup>

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<sup>31</sup>Specifically, agreement occurs when the tariff vector constructed from each country’s proposal for its own tariff maintains the initial world price. Each country would then regard this “agreement tariff” as equivalent to its proposed tariff vector.

<sup>32</sup>This requirement delivers a unique tariff vector assignment when the value of the domestic country’s implied import volume weakly exceeds the aggregate value of the foreign countries’ implied import volumes. If the domestic country is on the “short” side, rationing occurs, and this requirement does not result in a unique tariff vector assignment. For this case, Bagwell and Staiger (2016a) construct the mechanism so that it randomly selects one foreign country to have first priority. The constructed mechanism assigns tariffs such that the prioritized foreign country imports a volume equal to the minimum of its implied import volume and the

For the constructed mechanism, if countries use dominant strategies, Bagwell and Staiger (2016a) show that each country’s proposal must specify a tariff for itself that delivers its preferred trade volume, given the initial world price. As the four-country illustration above suggests, a novel feature of the multi-country setting is that the domestic country now has a *set* of dominant strategies. This set is defined by proposals under which the domestic country proposes for itself the tariff that delivers its preferred trade volume given the world price and proposes for the foreign countries any tariffs that when combined with the domestic tariff maintain the world price and thus ensure multilateral reciprocity. Importantly, the set of dominant strategies for the domestic country allows that its proposed tariff for itself may violate bilateral reciprocity when paired with its proposed tariff for an individual foreign country. Finally, and as in the two-country case, once the world price is fixed, dominant strategy proposals are similarly characterized even when governments have private information about their respective preferences.

The basic arguments apply as well in a four-country setting, where country \*3 does not participate in the negotiations. In this context, when negotiations must satisfy MFN and multilateral reciprocity, (i) if countries 1, \*1 and \*2 use dominant strategies, then each of these countries makes a proposal that specifies its politically-optimal-reaction-curve tariff for itself, and (ii) foreign country \*3 will be unaffected by the bilaterals (and there can be no free rider problems as a result). As before, under dominant strategy proposals, the implemented tariff vector is efficient if and only if the initial world price is set at the politically optimal level.

Hence, as with bilateral reciprocity, when negotiations must satisfy MFN and multilateral reciprocity, non-participants will be unaffected by the negotiations and it is a dominant strategy for each participating government to propose for a given import product the tariff that generated its preferred trade volume for a fixed terms of trade. 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.<sup>33</sup>

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value of the domestic country’s implied import volume, while the other foreign country imports a volume equal to the difference between the value of the domestic country’s implied import volume and the prioritized foreign country’s implied import volume (if that difference is positive). Similar results would obtain under other prioritization rules, including rules that give priority to a principal supplier, provided that priority is not influenced by foreign proposals (conditional on being in the case where the domestic country is short).

<sup>33</sup>While we do not attempt structural estimation of a bargaining model in this paper, it is nevertheless useful to point out that the mechanism characterized by Bagwell and Staiger (2016a) can generate outcomes consistent with no offer modification (when countries are symmetric) or one offer modification (when countries

## 6.2. The UK and its Commonwealth Partners

We have shown above how MFN and reciprocity together can neutralize bargaining externalities across bargaining pairs, and we have argued that these institutional constraints can help account for core features of the Torquay bargaining records. And most of the tariff bargains in the Torquay Round conformed to the MFN principle. But there were exceptions. In particular, the UK and its Commonwealth partner countries negotiating at Torquay granted tariff preferences to each other on a range of selected products, and hence represent an important deviation from MFN; yet as a group these countries exhibited bargaining behaviors at Torquay which were not atypical with respect to the stylized facts we have described.<sup>34</sup> Here we argue that the positive (though not the normative) features of our dominant-strategy arguments above extend to the case where some countries grant tariff preferences to other countries, provided that those preference margins are preserved by any proposals made in the bilateral MFN tariff negotiations. We then present evidence that Commonwealth countries did indeed propose to reduce their preferential tariff rates whenever they proposed to reduce their MFN tariff rates at Torquay in a way that essentially preserved the preference margins they granted to their Commonwealth partner countries.

We first note that this behavior was explicitly permitted (though not required) at Torquay, as described in the following excerpt from Torquay bargaining protocol (see Hoda, 2001, pp 191-192):

...(c) In negotiations relating to any specific product with respect to which a preference applies: (i) when a reduction is negotiated only in the most-favoured-nation rate, such reduction shall operate automatically to reduce or eliminate the margin of preference applicable to that product; (ii) when a reduction is negotiated only in the preferential rate, the most-favoured-nation rate shall automatically be reduced to the extent of such reduction; (iii) when it is agreed that reductions will be negotiated in both the most-favoured-nation rate and the preferential rate, the reduction in each shall be that agreed by the parties to the negotiations; and (iv) no margin of preference shall be increased.

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are asymmetric). If the framework were extended to allow for shocks (e.g., a given bilateral randomly fails), then the corresponding outcomes would be consistent with two or more offer modifications that require countries to switch to other strategies within their sets of dominant strategies.

<sup>34</sup>The Benelux countries were also members of a preferential trade agreement. But unlike the Commonwealth countries, theirs was a customs union, and following arguments similar to those in Bagwell and Staiger (1999, 2001) it can be shown that the dominant strategy arguments we describe above go through without modification in the presence of a customs union.

As the Torquay protocol specifies, proposals of MFN tariff cuts accompanied by preferential tariff cuts that preserve the margin of preference would be covered by (ii), and by (iii) and (iv), in the excerpted passage above.

We next return to our three-country model and suppose that the home country initially imposes an MFN tariff  $t_0^{MFN}$  on imports from foreign country \*1 and a preferential tariff  $t_0^{PREF} < t_0^{MFN}$  on imports from foreign country \*2, implying an initial MFN world price  $\tilde{p}_0^{wMFN}$  for trade between home and \*1 and a preferential world price  $\tilde{p}_0^{wPREF}$  for trade between home and \*2. The key point is that, as long as  $t^{MFN}$  and  $t^{PREF}$  are non-prohibitive, we must have  $p = \tau^{MFN}\tilde{p}^{wMFN} = \tau^{PREF}\tilde{p}^{wPREF}$  and hence

$$\tilde{p}^{wPREF} = \frac{\tau^{MFN}}{\tau^{PREF}}\tilde{p}^{wMFN} \quad (6.3)$$

where  $\tau^{PREF} = (1 + t^{PREF})$  and  $\tau^{MFN} = (1 + t^{MFN})$ , implying that the relationship between  $\tilde{p}^{wMFN}$  and  $\tilde{p}^{wPREF}$  is pinned down by the margin of preference  $[1 - \frac{\tau^{PREF}}{\tau^{MFN}}]$ .<sup>35</sup>

Consider now the following bilateral tariff agreement between the home country and foreign country \*1. Suppose that the home country agrees to cut its MFN tariff from  $t_0^{MFN}$  to  $t_1^{MFN} < t_0^{MFN}$  but also to cut its preferential tariff from  $t_0^{PREF}$  to  $t_1^{PREF}$  according to  $\frac{\tau_1^{PREF}}{\tau_0^{PREF}} = \frac{\tau_1^{MFN}}{\tau_0^{MFN}}$ . This would leave the margin of preference between the home country and foreign country \*2,  $[1 - \frac{\tau_1^{PREF}}{\tau_1^{MFN}}]$ , unchanged at its initial level  $[1 - \frac{\tau_0^{PREF}}{\tau_0^{MFN}}]$ . If in addition foreign country \*1 agrees to a reciprocal tariff cut of its own that holds  $\tilde{p}^{wMFN}$  fixed, then by (6.3)  $\tilde{p}^{wPREF}$  would also be held fixed, and the bargaining externality on foreign country \*2 – the preferential trade partner of the home country – would be neutralized, just as in the case of a bilateral tariff bargain that satisfies reciprocity in a world where all countries conform to MFN. With this result in hand, it is then a short step to see that the positive features of our dominant-strategy arguments above extend to the case where the home country has preferential trading relationships as long as the home country ensures an unchanged margin of preference for its preferential trading partner(s) under any proposals made in its reciprocal MFN tariff bargains.<sup>36</sup>

Table 6 presents evidence that Commonwealth countries did indeed offer to reduce their preferential tariff rates whenever they offered to reduce their MFN tariff rates at Torquay in a way that essentially preserved the preference margins they offered their Commonwealth partner

<sup>35</sup>In the case of specific tariffs  $t^{MFN}$  and  $t^{PREF}$ , the margin of preference is defined as  $[t^{MFN} - t^{PREF}]$ .

<sup>36</sup>The normative features of our arguments above, namely, that bilateral bargaining subject to reciprocity will deliver efficient tariff outcomes in the symmetric case, are not preserved in the absence of MFN even if preference margins are preserved by the bargain, because the political optimum is not efficient in the absence of MFN (see Bagwell and Staiger, 2002).

countries. Each row of Table 6 corresponds to a Commonwealth country who, in its bilateral tariff bargains at Torquay, offered MFN tariff cuts on products for which it granted preferential tariff access to its Commonwealth partners. There were three such countries: the UK, Australia and New Zealand. The first column records the existing ad valorem and specific preference margins (averaged over the products on which a tariff preference exists), the second column records the proposed ad valorem and specific preference margin implied by the proposed MFN and preferential tariff offers, and the third column records the proposed change in ad valorem and specific preference margins. As Table 6 reveals, the proposals at Torquay were constructed in a way that essentially preserved the existing margins of tariff preferences for Commonwealth countries, in line with what would be needed for our dominant-strategy arguments to extend to this environment.

### **6.3. Newcomers to GATT**

As we have earlier observed, the Torquay Round was the third GATT round of tariff negotiations, following on the heels of the Geneva (1947) and Annecy (1949) rounds. And as an early GATT report describes (ICITO, 1949, p. 10), the bargaining at Torquay proceeded according to a “new technique” that had been “devised at the London Session of the Preparatory Committee in October 1946” and “worked out in practice at Geneva and Annecy.” But six of the 37 parties negotiating at Torquay were newcomers to GATT and were negotiating their accession there, raising the possibility that, owing to their lack of experience with the GATT bargaining forum, these countries may have adopted different bargaining techniques when they arrived at Torquay than those countries that had been present in Geneva and/or Annecy. Curzon (1966) describes the negotiating experience of several GATT newcomers this way:

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. Others who arrived with inadequate offers or too high a tariff found that these were not accepted and then either had to reduce tariffs unilaterally or to wait until the next round. (p. 74)



Did the newcomers at Torquay conform to the broader GATT convention of non-strategic behavior that our earlier quote from Curzon describes and that is supported by our findings that offers of tariff cuts for given import products were rarely deepened over the course of the negotiations (Stylized Fact 5a), and that once the initial proposals were on the table countries responded to imbalances in the outstanding offers by adjusting their own offers rather than by adjusting their requests (Stylized Fact 2)? Or did the newcomers instead arrive at Torquay prepared to behave in a more traditionally strategic manner, as the Curzon quote just above suggests might have been the case?

Tables 7 and 8 provide evidence on these questions from the perspective of Stylized Fact 5a, by reporting the statistics in Table 4 split into two sub-samples. Table 7 presents data for the subsample of the countries acceding to GATT at Torquay (Austria, Germany, Korea, Peru, Philippines and Turkey), while Table 8 presents data for the subsample of non-acceding countries (i.e., existing GATT member) at Torquay. As with Table 4, the top three rows of Tables 7 and 8 condition on finalized agreed concessions being reached, and report Sales (own tariff) and Purchases (bargaining partner tariff) statistics by product-negotiating partner pairs. And the bottom three rows report analogous own-tariff statistics, but as with Table 4 these rows focus only on the sellers of market access and do not condition on finalized agreed concessions being reached or on the country making the request of or receiving the offer from the seller.

As a comparison of the first three (Sales) columns of the second and third rows across Tables 7 and 8 reveals, for newcomers (Table 7 – acceding countries) there is significant deepening of own-tariff offers within a product-negotiating partner pair between the initially offered tariff cut and the final agreed tariff cut, while for existing GATT members (Table 8 – non-acceding countries) there is essentially no movement. A similar conclusion emerges from a comparison of the fifth and sixth rows across Tables 7 and 8: for newcomers, there is significant deepening of their product level own-tariff offers between the earliest offer they made on that product (to any bargaining partner) and the last offer they made on that product (to any bargaining partner) prior to the round’s conclusion, while for existing GATT members there is no such movement. Finally, the movements in bargaining partner tariffs between the second and third rows of the last three (Purchases) columns are broadly similar across Tables 7 and 8 and relatively small, as would be expected given the broadly similar sets of partners with which acceding countries and existing GATT members negotiated and the predominance of existing GATT members in those sets. From the perspective of Stylized Fact 5a, it therefore appears that newcomers to

GATT behaved in a more traditionally strategic manner at Torquay than did those countries with more negotiating experience in the GATT bargaining forum.

The evidence regarding Stylized Fact 2 paints a similar picture. As an example, consider Figure 9, which like Figure 5 for the US, displays an overview of the timing and actions – request (R), modification of request (RM), offer (O), modification of offer (OM), withdrawal of offer (OW), agreement (A) and modification of agreement (AM) – for each of the 24 bilateral negotiations involving Germany at Torquay. The relative frequency of RMs that occur after Os in the timeline of Germany’s bilaterals in Figure 9 as compared to the timeline of the US bilaterals in Figure 5 illustrates the point: once the initial proposals were on the table, newcomers such as Germany appear to have been more open than existing GATT members to respond to imbalances in the outstanding offers by adjusting their requests rather than their offers. Taken as a group, newcomers at Torquay were almost twice as likely as existing GATT members (32% versus 18%) to make counter-proposals by modifying the tariff-cut requests they were asking of their bargaining partners rather than modifying their own-tariff-cut offers.

## **7. Multilateral versus Bilateral Reciprocity**

As we have noted, GATT practitioners place great emphasis on the role that GATT played in allowing countries to seek multilateral as opposed to bilateral reciprocity in their tariff bargains. Was the relaxation of strict bilateral reciprocity afforded by the multilateral nature of the GATT bargaining forum a key to GATT’s success? One approach to assessing this claim would be to attempt direct measures of the degree to which the Torquay bargaining outcomes violated bilateral reciprocity but conformed with multilateral reciprocity. A difficulty with this approach is that, in addition to requiring detailed trade data from the period (see note 19), it also requires knowledge of the detailed trade elasticities that would apply.

Here we pursue an alternative approach to assessing this claim. In particular, if countries were counting on indirect trade benefits from the MFN tariff cuts negotiated between third parties to achieve multilateral reciprocity in the Torquay Round, then we would expect to see reactions in the bilateral bargaining records of some countries when an unanticipated event occurs in the bilateral negotiations of other countries, whereas according to the theory sketched out in section 6.1 no such reaction would be expected if strictly bilateral reciprocity had been demanded and achieved all along. Indeed, a report issued by the GATT Secretariat in the aftermath of the failure of the UK and a number of its Commonwealth partners to reach



agreement with the US in the Torquay Round suggests that such reactions to unanticipated third-party events were thought to be an important feature of the round:

The fact that certain of the more important negotiations initiated between existing contracting parties did not result in agreements inevitably had some reactions on other negotiations. If, for example, the other countries engaged in tariff negotiations at Torquay had been sure that substantial concessions were going to be exchanged between the United Kingdom, Australia and New Zealand on the one hand, and the United States on the other, they might have been prepared, in the light of the benefits which they would have enjoyed from the automatic extension of these concessions to them, to go somewhat further in reducing their own tariffs. (ICITO, 1952, p. 9)

This discussion suggests an indirect way to evaluate the contribution to the success of GATT tariff bargaining of the relaxation of strict bilateral reciprocity. If the collapse of the bilateral bargains between the US on the one hand and the UK, Australia and New Zealand on the other triggered significant changes in the remaining bilaterals that these countries negotiated with third countries at Torquay, then this would be evidence that strict bilateral reciprocity was not a feature of the bargains that were anticipated to prevail on the eve of this collapse, and evidence therefore consistent with the view that the relaxation of strict bilateral reciprocity facilitated by the GATT multilateral bargaining forum was indeed important to the success of the GATT approach.<sup>37</sup> On the other hand, if little or no change in the remaining bilaterals of these countries is observed in response to this collapse, this would suggest that bilateral reciprocity between the US and each of these bargaining partners was in fact built in to the bargains all along, and that the relaxation of the need for strict bilateral reciprocity facilitated by the GATT multilateral forum was then not likely to be a central reason for GATT's success.

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<sup>37</sup>To further relate this interpretation to the theoretical framework described in section 6.1, we make two additional observations. First, and focusing for illustration on the US proposals, if the failure of the US-Commonwealth bargains are regarded as random and exogenous, then under multilateral reciprocity any resulting changes in US proposals might be broadly interpreted as the utilization of an alternative dominant strategy for the US (and similarly for each of the changed proposals of the Commonwealth countries). Second, we note that the simple theory sketched out in section 6.1 does not explain why the relaxation of bilateral reciprocity in favor of multilateral reciprocity would matter to the success of tariff bargaining. Alternative models, however, may provide potential explanations. For example, in a 3-good, 3-country model of triangular trade, where country *A* exports good *a* to country *B*, country *B* exports good *b* to country *C*, and country *C* exports good *c* to country *A*, negotiations over import tariffs can generate potential gains under multilateral reciprocity but not under bilateral reciprocity. More generally, empirical evidence of a beneficial role for multilateral reciprocity may motivate interesting and new theoretical analyses.

We follow this logic with two tests. First, we check at the country level whether the breakdown in the US-UK, US-Australia and US-New Zealand bilaterals led to a retrenchment of offers by third parties to these four countries, as the passage quoted above from the GATT report suggests. Second, we test at the product level whether products which were under negotiation in these three bilaterals prior to their breakdown were more likely to be re-offered by these countries to third parties after the breakdown, thereby at least partially converting into direct benefits for these third parties what would have been anticipated as indirect benefits from successful bilaterals between the US and the UK, Australia and New Zealand.<sup>38</sup>

To implement these tests, we must identify when the news of the breakdown of the US bilaterals with these Commonwealth countries occurred. This news was officially announced at the GATT Secretariat on March 31, 1951, but *The New York Times* (1951a) broke the news with a dateline March 30 special press report, and it seems unlikely that even the March 30 announcement would have come as a complete surprise to the other negotiating countries at Torquay. Below we will report results that set the “news” date at February 18, because that was the day after the last action in the US-UK bilateral – the UK’s modification of its offer to the US on 2/17/1951 – and it seems plausible that general news of the disappointing UK response to the US request that it substantially reduce the margins of preference which it accorded to its Commonwealth partners would have become known to other negotiators soon after (and there were no actions in the US-Australia or US-New Zealand bilaterals past this date). But we also experiment with alternative news dates between March 1 and March 30.

We begin with the question of retrenchment: Were the bargaining partners of the US, the UK, Australia and New Zealand less willing to make offers in their bilaterals with these four countries once it became known that these US-Commonwealth bilaterals had failed? To answer this question, we focus on the change in the share of product-level offers that the other participating countries at Torquay made to these four countries after they learned about the

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<sup>38</sup>It would be interesting to consider the impact of news about third-party bilaterals more generally on the pattern of offers at Torquay. But given the emphasis placed by official ICITO (1952) report on the importance of the breakdowns in the US-UK, US-Australia and US-New Zealand bilaterals for the wider outcomes of the Torquay Round, our focus on these breakdowns seems the natural place to start. It is also interesting to note how the ICITO report describes the reasons for the breakdowns: “... Substantial cuts in the tariffs of these Commonwealth countries, however, would inevitably have involved substantial reductions in some of the margins of preference which they accord to one another and the Commonwealth negotiators were not prepared to agree to major tariff concessions of this kind at the price which the United States negotiators were prepared to offer in return.” (p. 9). The evidence that we present in Table 6 is consistent with the view stated by the ICITO that, in their bilaterals with the US, the Commonwealth countries were not willing to offer significant reductions in their preference margins given the price that the US was offering in exchange.

breakdown in these bilaterals, and ask whether these shares changed in a way that suggests a re-orienting of offers away from these four countries. To this end, we define  $\mathcal{T}$  as the set of participating countries at Torquay, and we define  $\mathcal{F}$  as the subset of countries consisting of the US, the UK, Australia and New Zealand. And we denote by  $\#O_{\mathcal{X}\rightarrow\mathcal{Y}}$  the number of product-level tariff-cut offers that countries in the set  $\mathcal{X}$  made to countries in the set  $\mathcal{Y}$  and by  $\#O_{\mathcal{T}\setminus\mathcal{F}\rightarrow f}$  the number of product-level offers that countries in the set  $\mathcal{X}$  made to a country  $f \in \mathcal{F}$ . With this we also have  $\#O_{\mathcal{T}\setminus\mathcal{F}\rightarrow\mathcal{F}} = \sum_{f \in \mathcal{F}} \#O_{\mathcal{T}\setminus\mathcal{F}\rightarrow f}$ . We then define the share of product-level offers that countries in the set  $\mathcal{T}\setminus\mathcal{F}$  made to a country  $f \in \mathcal{F}$  by

$$SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow f} \equiv \frac{\#O_{\mathcal{T}\setminus\mathcal{F}\rightarrow f}}{\#O_{\mathcal{T}\setminus\mathcal{F}\rightarrow\mathcal{T}\setminus\mathcal{F}}},$$

and the overall share of product-level offers that countries in the set  $\mathcal{T}\setminus\mathcal{F}$  made to countries in the set  $\mathcal{F}$  by

$$SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow\mathcal{F}} \equiv \frac{\#O_{\mathcal{T}\setminus\mathcal{F}\rightarrow\mathcal{F}}}{\#O_{\mathcal{T}\setminus\mathcal{F}\rightarrow\mathcal{T}\setminus\mathcal{F}}}.$$

Fixing 2/18/1951 as the date at which negotiators at Torquay learned of the breakdown of these US-Commonwealth bilaterals, we find that on 2/18/1951,  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow\mathcal{F}} = 0.345$  (with individual components  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow US} = 0.231$ ,  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow UK} = 0.105$ ,  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow AUS} = 0.006$  and  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow NZ} = 0.003$ ), indicating that on the eve of the breakdown the other participating countries at Torquay were making roughly 35% of their product-level offers to the US, the UK, Australia and New Zealand. We then recalculate these shares based on the offers outstanding at the end of the round, and find that  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow\mathcal{F}} = 0.391$  (with individual components  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow US} = 0.304$ ,  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow UK} = 0.076$ ,  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow AUS} = 0.008$  and  $SHARE_{\mathcal{T}\setminus\mathcal{F}\rightarrow NZ} = 0.002$ ), indicating that subsequent to the breakdown the other participating countries at Torquay were making roughly 39% of their product-level offers to these four countries. Clearly, while there is some variation across countries, with the shares of product-level offers to the US and Australia rising and the shares of product-level offers to the UK and New Zealand falling, these two sets of numbers do not suggest that overall there was a diminished willingness on the part of US, UK, Australia and New Zealand bargaining partners to make offers in their bilaterals with these countries after they had learned that the US-Commonwealth bilaterals would end in failure. Performing this same calculation with the “news” date fixed at either 3/1/1951, 3/15/1951 or 3/30/1951 yields similar results.

However, on closer examination this simple difference is driven strongly by a suite of offers from France after the US-Commonwealth breakdowns. While these offers from France may have

been influenced by the US-Commonwealth breakdowns, the narrative from the time suggests that other factors unique to the France bargaining strategy were probably more decisive.<sup>39</sup> Eliminating France from the calculations above, we find that on 2/18/1951  $SHARE_{T\setminus\mathcal{F}\rightarrow\mathcal{F}} = 0.400$  (with individual components  $SHARE_{T\setminus\mathcal{F}\rightarrow US} = 0.266$ ,  $SHARE_{T\setminus\mathcal{F}\rightarrow UK} = 0.125$ ,  $SHARE_{T\setminus\mathcal{F}\rightarrow AUS} = 0.006$  and  $SHARE_{T\setminus\mathcal{F}\rightarrow NZ} = 0.003$ ) while based on the offers outstanding at the end of the round we have  $SHARE_{T\setminus\mathcal{F}\rightarrow\mathcal{F}} = 0.374$  (with individual components  $SHARE_{T\setminus\mathcal{F}\rightarrow US} = 0.278$ ,  $SHARE_{T\setminus\mathcal{F}\rightarrow UK} = 0.083$ ,  $SHARE_{T\setminus\mathcal{F}\rightarrow AUS} = 0.010$  and  $SHARE_{T\setminus\mathcal{F}\rightarrow NZ} = 0.003$ ). These numbers are consistent with modest retrenchment, as they indicate a drop in the overall share of product-level offers that the other participating countries at Torquay made to these four countries from 40% to roughly 37% after they learned about the breakdown in these bilaterals. This is in turn consistent with the position that countries were counting on indirect trade benefits from the MFN tariff cuts negotiated between the US and its Commonwealth bargaining partners to achieve (multilateral) reciprocity, and pulled back on their offers to these countries in an attempt to reestablish reciprocity once they realized that these indirect benefits would not be forthcoming.<sup>40</sup>

We next turn to the question of re-offering: Were products which were under negotiation in the US-UK, US-Australia and/or US-New Zealand bilaterals prior to the breakdown of these bilaterals more likely to be re-offered by these countries to third parties after the breakdown, thereby converting into direct benefits for these third parties what would have been anticipated as indirect benefits from successful US-UK, US-Australia and US-New Zealand bilaterals? To answer this question, we define  $\mathcal{C}$  as the set of country pairs consisting of US-UK, US-Australia

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<sup>39</sup>In particular, as Curzun (1966, p. 110) describes, France was alone in following a strategy at Torquay that relied heavily on threats of renegotiating the existing tariff concessions it had agreed to in prior GATT rounds (under the GATT renegotiation provisions contained in Article XXVIII that we described in section 6.1). Curzun notes that most countries renegotiated less than ten items, whereas France was the exception and “renegotiated some 200 items, only to find later, to quote one of her negotiators, ‘that it had neither been necessary nor worthwhile.’” This discussion raises the possibility that France abandoned this strategy late in the round, which may account for the large number of offers it made to the US subsequent to 2/17/1951. That possibility seems to be supported by news coverage at the time: a November 8 1950 article in *The New York Times* (1950b) ran with the headline “French Now Seek New Tariff Duties: Torquay Trade Body Amazed as Paris Negates Efforts to Relax Import Curbs”; while an article published by the *Times* (1951b) on March 11 1951 stated that “France, which was frightening all participants in November with the number of items on which she wanted to raise duties (mostly items on which the French granted reductions in the earlier meetings at Geneva and Annecy) has mollified most of her trading partners. The French have withdrawn some of their demands for revision and given quoted compensation in other cases in the form of reductions on some other items, all after prolonged and sometimes acrimonious bargaining in dozens of hotel rooms.”

<sup>40</sup>Again, performing this same calculation with the “news” date fixed at either 3/1/1951, 3/15/1951 or 3/30/1951 yields similar results.

and US-New Zealand. Recalling that  $\mathcal{F}$  is the set of countries consisting of the US, the UK, Australia and New Zealand and that  $\mathcal{T}$  is the set of participating countries at Torquay, we then estimate the following regression on the sample of products for which any country in the set  $\mathcal{F}$  made an offer:

$$OfferPost_{g,fm} = \alpha_{HS1} + \gamma_{fm} + \beta OfferPre_{g,f} + \epsilon_{g,fm} \quad (7.1)$$

where  $g$  indexes products,  $f$  is a country index referring to an element of  $\mathcal{F}$ ,  $m$  is a country index referring to an element of  $\mathcal{T} \setminus \mathcal{F}$ ,  $\alpha_{HS1}$  is an HS1 fixed effect and  $\gamma_{fm}$  is a country-partner fixed effect (we also report results when only a country fixed effect  $\gamma_f$  is included).<sup>41</sup> The dependent variable  $OfferPost_{g,fm}$  is an indicator variable that takes a value of 1 if country  $f$  made a new post-breakdown offer to country  $m$  on product  $g$ , and 0 otherwise. The independent variable  $OfferPre_{g,f}$  is an indicator variable that takes a value of 1 if country  $f$  made a pre-breakdown offer on product  $g$  in a bilateral in the set  $\mathcal{C}$ , and 0 otherwise. The focus of equation (7.1) is the coefficient  $\beta$  which, if positive, indicates that a product was more likely to be offered after the breakdown of the US-Commonwealth bilaterals if it was part of the outstanding set of offers in the US bilaterals with the UK, Australia and New Zealand prior to the breakdown of these bilaterals.

Table 9 provides the regression evidence (Probit and OLS), with the news date fixed at 2/18/1951. The coefficient on  $OfferPost_{g,fm}$  is positive and significant in all specifications, as would be expected if the failure of the three US-Commonwealth bilaterals led these four countries to extend their offers to countries directly on products where those countries had anticipated that they would gain access indirectly through the US-Commonwealth bilaterals. Using news dates of 3/1/1951 and 3/15/1951 yields similar results, while if the official 3/30/1951 dateline of *The New York Times* press release is used for the news date, the results are still significant in the Probit, but overall the relationship is weaker. The results are robust to excluding offers to France.

Overall, these results provide indirect evidence that news of the breakdown in the US-Commonwealth bilaterals caused 3<sup>rd</sup> countries to rebalance their bilaterals with these countries, and hence evidence that bilateral reciprocity was not a feature of the bargains that were anticipated to prevail on the eve of this collapse, consistent with the view that the relaxation of bilateral reciprocity which was facilitated by the GATT multilateral bargaining forum was

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<sup>41</sup>We experimented with both HS1 and HS section fixed effects, finding that it made no material difference to our results, so we report results with HS1 fixed effects.



important for the success of the GATT approach.<sup>42</sup> Our results also provide some specific support for the view expressed in the report by the GATT Secretariat quoted above, that this rebalancing took the form at least partially of a general retrenchment of offers to the US, the UK, Australia and New Zealand, but only if the negotiating behavior of France is treated as unique, as described above. If one treats France as the same as others, our results suggest that this rebalancing still occurred, but that it was achieved not by an overall retrenchment of offers but rather by re-orienting offers from the failed US-UK, US-Australia and US-New Zealand bilaterals directly to those 3<sup>rd</sup> countries who stood to gain indirectly from successful US-Commonwealth bargains.

## 8. Conclusion

In this paper we have provided a first look at the newly declassified bargaining records of the GATT Torquay Round (1950-51), where over a 10 month period 299 separate bilateral negotiations among the 37 participating countries covering thousands of tariff-line products took place. Our examination of these records has shown that GATT multilateral tariff bargaining displays an array of interesting stylized facts. The numbers of back-and-forth offers and counteroffers in any bilateral bargain were relatively small. Once the initial proposals were on the table, the focus of bargaining narrowed to each country's own-tariff-cut offers rather than their requests of others. Offers for given import products were rarely deepened over the course of the negotiations; instead, adjustments typically involved a country "shopping around" its initial tariff-cut offers and ultimately reducing as necessary the depth of its overall (multilateral) offer.

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<sup>42</sup>To be clear, our results reject the null hypothesis that the Torquay bilaterals satisfied the restriction of bilateral reciprocity, because under this null the breakdown of the US-UK, US-Australia and US-New Zealand bilaterals would not have triggered adjustments in the remaining bilaterals of these four countries with third parties. Moreover, the nature of the adjustments that we document are consistent with the kind of rebalancing that would be required to reestablish multilateral reciprocity after such a breakdown, in that these four countries were re-orienting their offers toward the rest of the participants at Torquay at the same time that the rest of the participants at Torquay were reorienting their offers away from these four countries. And in further support of this interpretation we note that in US State Department (1951, p. 6) the US provided a preliminary estimate (based on trade coverage) of "the indirect benefits, which will accrue to the United States as the result of concessions exchanged by other participants in the Torquay Conference in approximately 130 negotiations between pairs of countries," and concluded that these indirect benefits amounted to about 10 percent of the trade benefits accruing directly from its own negotiations at Torquay (a later accounting by the US International Chamber of Commerce, 1955 p. 24, put the number closer to 20 percent). Still, we can't rule out the possibility that (i) there was a general lack even of multilateral reciprocity before the US-UK, US-Australia and US-New Zealand breakdowns, and (ii) as a consequence there were externalities across bilateral bargains which were impacted by these breakdowns and led to further adjustments in the remaining bilaterals.

And when a country chose to reduce the depth of its offers, it did so by removing products from its offers, not by raising the level of the tariff cut offered. Initial offers sometimes sat dormant for long periods only to be finalized with a single modification at the time that other bargains were concluded. The set of requests a country entertained seemed to conform with principal supplier considerations, but when it came to deciding which bargaining partners to make requests of on a given product there appears to have been a more narrow focus than principal supplier considerations would warrant. Substantial numbers of offers were made that were not requested by the country to which the offer was extended, and some offers were made that were not requested by any country at all. And there was substantial two-way bargaining within narrow product categories, and significant numbers of these two-way bargains occurred within a single bilateral.

Several of these stylized facts lend support to two features that are seen by GATT practitioners and legal scholars as hallmarks of the tariff bargaining that occurred in the early GATT rounds, namely, a surprising lack of strategic behavior among the participating governments and an important multilateral element to the bilateral bargains. We have suggested that, when viewed through the lens of the terms-of-trade theory of trade agreements, these features can be understood as emerging from a tariff bargaining forum that emphasizes the GATT pillars of MFN and multilateral reciprocity. And we have offered the first evidence for the claim that the relaxation of strict bilateral reciprocity facilitated by the GATT multilateral bargaining forum was important to the success of the GATT approach.

To interpret the GATT bargaining data we have relied on strong institutional assumptions. These assumptions have allowed us to make contact with a number of important features of GATT tariff bargaining and the stylized facts that seem to reflect these features. But the set of stylized facts that we have identified point to additional features of the tariff bargaining at Torquay that our theoretical framework does not currently and perhaps cannot speak to, pointing to the importance of more general theoretical structures and additional theoretical work to guide the analysis of tariff bargaining and interpret the results. All of these features would be unknowable without the detailed bargaining data that the WTO has begun to make publicly available. In this light, as more and more of this data becomes accessible to researchers, we view our initial look at the GATT bargaining data as providing a promising view for the road ahead.

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## 9. Tables

	Mean	SD	Min	Max	N
Number of offers per good-country	1.363	0.516	1	5	19560
Number of offers per country	1.787	0.659	1	6	324
Number of requests per good-country	1.021	0.148	1	3	38591
Number of requests per country	1.130	0.370	1	3	437
Conditional on Final agreement					
Number of offers per good-country	1.532	0.546	1	5	13030
Number of offers per country	1.969	0.596	1	6	259
Number of requests per good-country	1.047	0.215	1	3	6974
Number of requests per country	1.191	0.444	1	3	241
Number of weeks from the last offer (O or OM) to the first agreement (A)	11.771	7.405	0.143	26.286	124
Fraction of goods for which agreement was later modified	0.035	0.197	0	2	145

Table 1: Back-and-Forth Offers and Counteroffers in the Torquay Round: This table presents statistics on the amount of back and forth on goods and with negotiating partners over concessions negotiated by all participating countries in the Torquay Round. Offer statistics reflect averages conditional on at least one offer; Request statistics reflect averages conditional on at least one request.

	Unique	Total	$\frac{\text{Total}}{\text{Unique}}$	By Negotiating Partner				
				Mean	SD	Min	Max	
<b>Sales</b>								
HS6 requests	29341	38591	1.315	67.232	135.388	0	1259	
HS6 request modifications	2202	2302	1.045	4.010	21.699	0	267	
HS6 offers	15683	19560	1.247	34.077	98.357	0	1111	
HS6 offer modifications	1292	1330	1.029	2.317	20.982	0	337	
HS6 offers on requests	11064	10436	0.943	18.181	57.566	0	589	
Fraction HS6 offers on requests	70.55%			31.19%	0.370	0	1	
HS6 offers without request	4619	9124	1.975	15.895	49.433	0	554	
Fraction HS6 offers without request	29.45%			25.26%	0.334	0	1	
HS6 final concessions	11106	13030	1.173	22.700	77.321	0	917	
HS6 final concessions with requests	7944	6974	0.878	12.150	46.615	0	555	
Fraction final concession with request	71.53%			24.36%	0.351	0	1	
HS6 final concession without request	3162	6056	1.915	10.551	38.797	0	464	
Fraction final concessions without request	28.47%			20.77%	0.322	0	1	
<b>Purchases</b>								
HS6 requests	18836	38591	2.049	67.232	135.388	0	1259	
HS6 request modifications	2050	2302	1.123	4.010	21.699	0	267	
HS6 offers	12775	19560	1.531	34.077	98.357	0	1111	
HS6 offer modifications	1313	1330	1.013	2.317	20.982	0	337	
HS6 offers on requests	9224	10436	1.131	18.181	57.566	0	589	
Fraction HS6 offers on requests	58.82%			31.19%	0.370	0	1	
HS6 offers without request	3551	9124	2.569	15.895	49.433	0	554	
Fraction HS6 offers without request	22.64%			25.26%	0.334	0	1	
HS6 final concessions	9064	13030	1.438	22.700	77.321	0	917	
HS6 final concessions with requests	6787	6974	1.028	12.150	46.615	0	555	
Fraction final concession with request	61.11%			24.36%	0.351	0	1	
HS6 final concession without request	2277	6056	2.660	10.551	38.797	0	464	
Fraction final concessions without request	20.50%			20.77%	0.322	0	1	

Table 2: Sales and Purchases by US. Sales concern US tariffs. Purchases concern non-US tariffs. Requests correspond to negotiating partners seeking a tariff reduction. Offers correspond to a country offering a tariff reduction. Unique refers to the number of unique HS6 codes. Total refers to the number of HS6 code-country pairs.



<b>Sales</b>			<b>Purchases</b>		
N countries	N products	Fraction products	N countries	N products	Fraction products
Any request			Any request		
1	22388	76.30%	1	10465	55.56%
2	5228	17.82%	2	3973	21.09%
3	1297	4.42%	3	1987	10.55%
4	337	1.15%	4	925	4.91%
5	58	0.20%	5	563	2.99%
6	22	0.07%	6	325	1.73%
7	6	0.02%	7	167	0.89%
8	2	0.01%	8	127	0.67%
9	2	0.01%	9	65	0.35%
10	1	0.00%	10	74	0.39%
11	0	0.00%	11	44	0.23%
12	0	0.00%	12	45	0.24%
>12	0	0.00%	>12	76	0.40%
Any offer			Any offer		
1	12467	79.49%	1	8835	69.16%
2	2696	17.19%	2	2420	18.94%
3	398	2.54%	3	850	6.65%
4	109	0.70%	4	339	2.65%
5	10	0.06%	5	172	1.35%
6	1	0.01%	6	77	0.60%
7	1	0.01%	7	42	0.33%
8	1	0.01%	8	18	0.14%
9	0	0.00%	9	12	0.09%
>9	0	0.00%	>9	10	0.08%
Final Concession			Final Concession		
1	9347	84.16%	1	6608	72.90%
2	1613	14.52%	2	1569	17.31%
3	127	1.14%	3	542	5.98%
4	19	0.17%	4	198	2.18%
5	0	0.00%	5	75	0.83%
>5	0	0.00%	>5	72	0.79%

Table 3: Distribution of Sales and Purchases by all participating countries in the Torquay Round. This table presents the number of negotiating partners associated with a product conditional on the product having any request, any offer, or a final concession. “Sales” records requests, offers and final concessions that refer to own tariffs. “Purchases” records requests, offers and final concessions that refer to the tariffs of the bargaining partner.

		Sales			Purchases		
		Ad Val	Specific	All	Ad Val	Specific	All
		Country-Specific					
Initial Request over Existing Tariff	Mean	0.529	0.592	0.552	0.529	0.592	0.552
	SD	0.250	0.313	0.276	0.250	0.313	0.276
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	21956	12595	34551	21956	12595	34551
Initial Offer over Existing Tariff	Mean	0.807	0.840	0.820	0.807	0.840	0.820
	SD	0.202	0.221	0.210	0.202	0.221	0.210
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	9781	6805	16586	9781	6805	16586
Finalized Concession over Existing Tariff	Mean	0.788	0.842	0.811	0.788	0.842	0.811
	SD	0.199	0.228	0.214	0.199	0.228	0.214
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	6247	4665	10912	6247	4665	10912
		Cross-Country					
Initial Request over Existing Tariff	Mean	0.528	0.594	0.554			
	SD	0.252	0.316	0.281			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	16118	10351	26469			
Initial Offer over Existing Tariff	Mean	0.811	0.848	0.827			
	SD	0.203	0.219	0.211			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	7573	5661	13234			
Finalized Concession over Existing Tariff	Mean	0.799	0.834	0.814			
	SD	0.206	0.236	0.220			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	7549	5477	13026			

Table 4: Initial requests, initial offers and final offers and concessions over existing tariffs for all participating countries in the Torquay Round. “Sales” records requests, offers and final concessions that refer to own tariffs. “Purchases” records requests, offers and final concessions that refer to the tariffs of the bargaining partner. Country-Specific numbers condition on a final agreed concession being reached and refer to a given Seller-Purchaser-HS6. Some goods appear in both the ad valorem and specific columns. Cross-Country numbers refer to a given Seller-HS6.

	HS6 received request and made request	6677
	HS6 made offer and made request	4531
	HS6 received offer and received request	4742
HS6 received request or made offer and made request or received offer (same country)		2391
	HS6 made and received a final concession (same country)	374
Fraction for which US made and received a final concession (same country)		15.64%

Table 5: Two-way Sales and Purchases by all participating countries in the Torquay Round. This table records the numbers of goods for which participants at Torquay were both offering tariff reductions, and seeking tariff reductions, sometimes with the same negotiating partner.

Country	Existing Preference		Proposed Preference		Preference Change	
	Ad Valorem	Specific	Ad Valorem	Specific	Ad Valorem	Specific
UNITED KINGDOM	1.091	0.009	1.077	0.007	-0.012	-0.002
AUSTRALIA	1.200	27.078	1.180	26.670	-0.017	-0.409
NEW ZEALAND	1.188	1.000	1.172	0.000	-0.013	-1.000

Table 6: Changes in tariff preference margins at Torquay. Each row corresponds to a Commonwealth country who, in its bilateral tariff bargains at Torquay, offered MFN tariff cuts on HS6 products for which it granted preferential tariff access to its Commonwealth partners. See text for definition of preference margins; ad valorem entries are one plus the preference margin, ad valorem preference margin change is the ratio of proposed over existing minus one.

		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
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	4303	4689	8992	6365	2756	9121
Initial Offer over Existing Tariff	Mean	0.824	0.867	0.852	0.826	0.837	0.830
	SD	0.231	0.204	0.215	0.178	0.226	0.197
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	1724	3339	5063	3409	1951	5360
Finalized Concession over Existing Tariff	Mean	0.725	0.858	0.828	0.806	0.849	0.820
	SD	0.179	0.220	0.219	0.183	0.232	0.201
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	668	2271	2939	2863	1324	4187
		Cross-Country					
Initial Request over Existing Tariff	Mean	0.473	0.628	0.560			
	SD	0.300	0.330	0.326			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	2828	3605	6433			
Initial Offer over Existing Tariff	Mean	0.832	0.872	0.858			
	SD	0.238	0.200	0.215			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	1376	2695	4071			
Finalized Concession over Existing Tariff	Mean	0.790	0.845	0.830			
	SD	0.229	0.238	0.236			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	936	2530	3466			

Table 7: Initial requests, initial offers and final offers and concessions over existing tariffs for all acceding countries in the Torquay Round. “Sales” records requests, offers and final concessions that refer to own tariffs. “Purchases” records requests, offers and final concessions that refer to the tariffs of the bargaining partner. Country-Specific numbers condition on a final agreed concession being reached and refer to a given Seller-Purchaser-HS6. Some goods appear in both the ad valorem and specific columns. Cross-Country numbers refer to a given Seller-HS6.

		Sales			Purchases		
		Ad Val	Specific	All	Ad Val	Specific	All
		Country-Specific					
Initial Request over Existing Tariff	Mean	0.543	0.581	0.555	0.512	0.585	0.540
	SD	0.235	0.303	0.259	0.257	0.319	0.285
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	17653	7906	25559	15591	9839	25430
Initial Offer over Existing Tariff	Mean	0.803	0.815	0.806	0.796	0.841	0.816
	SD	0.194	0.234	0.207	0.212	0.219	0.216
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	8057	3466	11523	6372	4854	11226
Finalized Concession over Existing Tariff	Mean	0.796	0.826	0.805	0.773	0.839	0.806
	SD	0.200	0.235	0.212	0.211	0.227	0.221
Existing Tariff	Min	0	0	0	0	0	0
	Max	1	1	1	1	1	1
	N	5579	2394	7973	3384	3341	6725
		Cross-Country					
Initial Request over Existing Tariff	Mean	0.540	0.576	0.552			
	SD	0.239	0.307	0.264			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	13290	6746	20036			
Initial Offer over Existing Tariff	Mean	0.807	0.826	0.813			
	SD	0.194	0.233	0.208			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	6197	2966	9163			
Finalized Concession over Existing Tariff	Mean	0.800	0.825	0.808			
	SD	0.203	0.235	0.214			
Existing Tariff	Min	0	0	0			
	Max	1	1	1			
	N	6613	2947	9560			

Table 8: Initial requests, initial offers and final offers and concessions over existing tariffs for all non-acceding countries in the Torquay Round. “Sales” records requests, offers and final concessions that refer to own tariffs. “Purchases” records requests, offers and final concessions that refer to the tariffs of the bargaining partner. Country-Specific numbers condition on a final agreed concession being reached and refer to a given Seller-Purchaser-HS6. Some goods appear in both the ad valorem and specific columns. Cross-Country numbers refer to a given Seller-HS6.

	Probit	Probit	OLS	OLS
OfferPre	0.303** (0.148)	0.647*** (0.161)	0.068** (0.032)	0.099*** (0.031)
Observations	3031	2277	3031	3031
R-squared			0.162	0.563
Country FE	Yes	No	Yes	No
Country Pair FE	No	Yes	No	Yes
HS1 FE	No	Yes	No	Yes
Cluster SE	Yes	Yes	Yes	Yes

Table 9: Regression of whether an HS6 product - country pairing offered by the US, the UK, Australia or New Zealand to countries outside this set was added after 2/18/1951 (after the breakdown of the US-UK, US-Australia and US-New Zealand bilaterals) on whether the product in question had been offered by that country in one of these bilaterals prior to their breakdown. A positive coefficient implies that a product is more likely to be offered by one of these countries to countries outside this set following the breakdown of the US-UK, US-Australia and US-New Zealand bilaterals if that country was offering a concession on this product in one of these bilaterals prior to their breakdown. Standard errors clustered by negotiating partner. \*, \*\*, and \*\*\* denote significance at the 90%, 95%, and 99% confidence levels, respectively.