Multilateral Trade Bargaining: A First Peek at the GATT Bargaining Records*

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Abstract

[TBA]

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1. Introduction

The World Trade Organization's (WTO) recent release of the complete tariff bargaining records for the first five GATT multilateral negotiating rounds presents a major research opportunity for economists.[1] With the WTO still struggling to conclude its 13-year-long Doha Round of multilateral trade negotiations and now certain to fall far short of its initial aspirations, understanding the nature of trade bargaining has never been more important for the world trading system. At the same time, the existence of large-scale "field" data from any real-world bargaining setting is highly unusual, and it creates an important opportunity for research that illuminates the practice of bargaining more generally. In this paper we offer an initial look at a sliver of the GATT bargaining records, and make use of these records for the first time to analyze a set of questions that are central to understanding the specific nature of GATT/WTO tariff bargaining and to the study of many important bargaining problems more generally.

GATT/WTO tariff negotiations display several notable features. First, these 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. Second, 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 finally, though it is a multilateral institution, for the most part the GATT/WTO has adopted a bilateral approach to multilateral bargaining according to which reciprocal negotiations (over tariffs) occur on a voluntary basis through time between pairs of countries, 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.[2]

The first five GATT rounds spanned the years 1947-1961, involved more than 1,500 pairs of bargaining countries and resulted in over 70,000 agreed tariff cuts. In each of these rounds, the tariff negotiations took the form of simultaneous bilateral bargaining between pairs of countries over multiple tariff lines, all subject to the potential externality associated with the MFN principle. For each bilateral country pair, the bargaining records include the full sequence

[1] 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.

[2] As we describe further below, the first five GATT rounds adopted product-by-product tariff negotiations on a bilateral request-offer basis. The request-offer approach was de-emphasized in the Kennedy and Tokyo Rounds, where a tariff cutting formula across products was adopted, only to be re-emphasized in the Uruguay Round. The ongoing Doha Round has experimented with both formula and request-offer approaches.

of formal tariff requests, offers and counteroffers, and the eventual tariff commitments that were agreed (or a statement that agreement could not be reached).[3] The writings of the time (e.g., GATT, 1949, 1950, 1952, New York Times, 1951) emphasize trade bargaining challenges in the early GATT rounds that have obvious counterparts in modern times: addressing the existence of preferential tariffs (as embodied in the commonwealth trade practices of the United Kingdom), dealing with asymmetries in the tariff levels across negotiating countries (stemming from newcomers to the bargaining table in a given round), approaching the potential bargaining externalities associated with MFN (with techniques such as the principal supplier rule and tariff concessions split across bargaining partners), and confronting the possibility of major bargaining failures (as for example the failure of the U.S.-UK bilateral in the Torquay Round).

In this paper we restrict our focus to one of the five GATT rounds for which the bargaining data has been made public, the Torquay Round (1950-51), and within this round we restrict our focus further to just the complete set of 24 bilateral negotiations undertaken by the United States, leaving an analysis of the complete set of Torquay Round bilateral bargains (and that of other rounds) for future work. Our focus on the U.S. Torquay bilaterals keeps the data set manageable while at the same time allowing us to study the multilateral bargaining behavior of one of the major players in GATT specifically and the world trading system more generally. In addition, an analysis of the U.S. Torquay bargaining records is of particular interest because in its Torquay bargains the United States was faced with all of the trade bargaining challenges described just above, and hence with a set of challenges that have clear counterparts today.

Below we describe in detail the data from the U.S. Torquay bargaining records, and we use these records to develop an initial set of stylized facts relating to tariff bargaining behavior. We then provide an initial evaluation of questions ranging from whether preferential trading arrangements create stumbling blocks or building blocks for multilateral trade liberalization, to whether tariff asymmetries pose difficulties for negotiations, to how countries deal with the potential bargaining externalities associated with MFN. And we offer evidence on the

[3] We discuss later the degree to which the formal offers and counter-offers contained in the GATT bargaining records are likely to represent the complete tariff bargaining process in GATT rounds. But we note here that a potential benefit of studying the early GATT rounds (aside from the fact that they are the only rounds for which the bargaining records have so far been made publicly available by the WTO) is that, unlike for the more recent rounds such as the Uruguay and Doha Rounds where proposals and counterproposals could be easily transmitted back and forth electronically between negotiators without a written record preserved, in the older rounds a written record of the detailed product-level tariff cuts was the only way that a proposal or counter-proposal could be offered and assessed. We thank Sushan Demirjian, Deputy Assistant USTR for Market Access and Industrial Competitiveness, for pointing this out to us.

significance for successful tariff bargaining of GATT's ability as a multilateral forum to relax bilateral reciprocity constraints and allow countries to seek only multilateral reciprocity in their bargaining outcomes. We also show how, under certain conditions, the bargaining data can be used to recover the underlying political preferences of the participating governments and construct the complete-information efficiency frontier, against which the outcome of actual GATT rounds can be judged and the performance of counter-factual bargaining protocols can be assessed. In this paper we stop short of providing a characterization of the complete-information efficiency frontier under these conditions, but we do offer initial evidence on the consistency of these conditions with the observed bargaining data.

More specifically, after describing the GATT bargaining protocols and the form of the bargaining data, we present a variety of summary statistics and extract six main stylized facts. First, the bargaining appears to have taken the form of essentially take-or-leave offers on the intensive margin (the level of the tariff cut offered) and back-and-forth offers and counter-offers on the extensive margin (which products are to be included in the bargain). Second, the numbers of back-and-forth offers and counter-offers in any 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. Third, while in principle a proposal can be altered by either modifying the tariff commitment requested of one's bargaining partner or modifying the own-tariff commitment offered to the bargaining partner, in practice the mechanics of altering proposals through time overwhelmingly takes the form of modifications to offers rather than modifications of requests. Fourth, there is substantial two-way bargaining within narrow product categories, and significant numbers of these two-way bargains occur within a single bilateral. Fifth, while the set of requests a country entertains seems to conform with what might be expected on the basis of the principal supplier rule, when it comes to deciding which bargaining partners to make requests of on a given product there appears to be a more narrow focus than principal supplier considerations would dictate. And sixth, substantial numbers of offers are made that were not requested by the country to which the offer is extended, and in significant numbers of cases these offers are made without a request from any bargaining partner.

These stylized facts describe a rich array of features exhibited by GATT tariff bargaining that present a challenge for bargaining theory to explain, and no single modeling approach will likely account for all of these features. But models that can account for subsets of these features

can provide a lens from which to view the data and a more structured approach from which to interpret the data, and can thereby be useful as a way to begin to understand the underlying forces that drive bargaining behavior in this complex environment.

We therefore next develop our approach for providing a first more structured look at the bargaining data, and then turn to a more structured analysis of this data. Our approach is to work within the terms-of-trade theory of trade agreements, impose strict adherence to reciprocity and MFN, and argue that together these rules can induce truth-telling on the part of governments and eliminate bargaining externalities across bargaining pairs, thereby converting a potentially complex multilateral bargaining problem with private information into a comparatively straightforward set of full-information bilateral bargains. And we argue that only multilateral reciprocity, not bilateral reciprocity, is required for this result. We also show that, if GATT bargaining partners are asymmetric in a particular sense, the strict adherence to reciprocity and MFN that is necessary for these results will itself prevent governments from reaching the full information efficiency frontier, and so the simplification that comes from adherence to these rules does not come without a cost; and we argue that the difference between initial tariff offers and final agreed tariff levels should in theory provide a measure of the extent of failure of the GATT bargain to reach the full information efficiency frontier. We therefore suggest that, in attempting to turn the multilateral tariff bargaining problem into a collection of simultaneous bilateral bargains that adhere strictly to the twin pillars of reciprocity and MFN, GATT member governments may have found a pragmatic solution to what might otherwise be an insurmountably complicated bargaining problem.

From this modeling perspective, we then provide a first more structured analysis of the bargaining data. Our preliminary results can be summarized as follows. [TBA].

At a broader level, our initial peek at the GATT bargaining data indicates that in their negotiations over tariff commitments governments view their own tariff reductions as assets to be sold, in exchange for tariff reductions from their trading partners. Any theory of trade agreements that does not start from this premise would have difficulty making sense of the bargaining behavior exhibited by the United States and its bargaining partners in the Torquay Round. This observation of course would come as no surprise to trade practitioners, as its logic is imbedded in the very language of GATT, which refers to one's own tariff reductions as "concessions." But it is often interpreted as reflecting the mercantilist leanings of trade negotiators and the governments they serve, and hence interpreted as implying that tariff

bargains cannot be understood on the basis of coherent economic principles. We show here instead that the terms-of-trade theory of trade agreements can serve as a useful model for understanding on economic terms some of the central features of tariff bargaining in the GATT, without the need to appeal to mercantilist misunderstandings as the driving force of these bargains.[4]

The remainder of the paper proceeds as follows. To set the stage, in section 2 we first review a simple and basic framework for interpreting the problem that trade negotiations can solve. We describe the GATT bargaining protocols in section 3, and in section 4 we discuss the broad features of the GATT bargaining data. In section 5 we then present summary statistics relating to the U.S. Torquay bilaterals and describe a set of stylized facts about multilateral tariff bargaining that are suggested by these bargaining records. We follow this with further development of the theory in section 6 that serves as a guide to the more structured data analysis which we present in section 7. A final section offers conclusions and suggests directions for further work.

2. The Trade Negotiation Problem

We begin by reviewing the textbook two-good general-equilibrium model of trade between two countries, define a general family of government preferences, and use the resulting framework to characterize and interpret the problem that a trade agreement can solve. For this purpose we paraphrase the treatment in Bagwell and Staiger (2010a), and refer readers there for details.

The Model 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 we represent the domestic (foreign) ad valorem import tariff as 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.,

[4] An interesting question is whether the commitment theory of trade agreements could also be consistent with the broad behavior that we observe in the GATT bargaining records. (For further discussion of the commitment theory, see, for example, Bagwell and Staiger, 2010a.) We view this question as an important open question for future research.

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 τ^*.

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 $M_x(p, p^w) \equiv C_x(p, p^w) - Q_x(p)$ and $E_y(p, p^w) \equiv Q_y(p) - C_y(p, p^w)$. And for the foreign country, we have $M_y^*(p^*, p^w)$ and $E_x^*(p^*, p^w)$, respectively. For any prices, domestic and foreign budget constraints are represented as

$$p^w M_x(p, p^w) = E_y(p, p^w), \text{ and } M_y^*(p^*, p^w) = p^w E_x^*(p^*, p^w). \tag{2.1}$$

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

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

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 $\partial\widetilde{p}^w/\partial\tau < 0 < \partial\widetilde{p}^w/\partial\tau^*$, 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 $W(p, \widetilde{p}^w)$ and $W^*(p^*, \widetilde{p}^w)$, 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 the purpose of a trade agreement.

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:

$$W_{\widetilde{p}^w} < 0 \text{ and } W^*_{\widetilde{p}^w} > 0. \tag{2.3}$$

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

$$W_p + \lambda W_{\widetilde{p}^w} = 0, \text{ and} \tag{2.4}$$

$$W^*_{p^*} + \lambda^* W^*_{\widetilde{p}^w} = 0, \tag{2.5}$$

where $\lambda \equiv [\partial \widetilde{p}^w/\partial \tau]/[dp/d\tau] < 0$ and $\lambda^* \equiv [\partial \widetilde{p}^w/\partial \tau^*]/[dp^*/d\tau^*] < 0$. 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.

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. The 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 (τ^N, τ^{*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.

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.[5] 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 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 $W_{\widetilde{p}^w} \equiv 0$ and $W^*_{\widetilde{p}^w} \equiv 0$. 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 (τ^{PO}, τ^{*PO}) that satisfies $W_p = 0$ 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.

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 trade

[5] Formal proofs of these observations can be found in Bagwell and Staiger (1999, 2002).

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.

3. The GATT Bargaining Protocols

What form did GATT tariff bargaining take? The first five GATT rounds adopted selective product-by-product tariff negotiations on a bilateral request-offer basis, as did the eighth (Uruguay) and to varying degrees the present (Doha) round. As Hoda (2001) explains, the protocols for the first five rounds (which are reprinted in their entirety in Appendix B of Hoda, 2001) 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. Hoda (2001, pp. 44-45)

As a general matter, the initial request lists – and to varying degrees the initial offer lists – of tariff cuts were common knowledge (circulated among all of the participating governments) in each of the first five rounds, while the back-and-forth offers and counteroffers that transpired within each bilateral (ultimately deposited with the GATT Secretariat and now part of the GATT bargaining records) were known only to the participating governments in that bilateral, until the GATT Secretariat was informed that an outcome for that bilateral (either success or failure) had been achieved, at which point the details of the outcome 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. Own tariff cuts were viewed as bargaining concessions to be used to acquire tariff cuts from one's trading partners, and no government was expected to grant concessions to others which were not "adequately counterbalanced" by reciprocal concessions in return; in essence, governments sought to "sell MFN access" to their

own import markets in order to "buy MFN access" for their exporters to the import markets of their trading partners. Finally, governments were only expected to respond to tariff requests on products for which the participating countries in the negotiation supplied a principal part of the imports of the product in question into their market. Below we elaborate on a number of the more important features of these protocols.

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

and emphasized that the negotiations

> ...are also to be conducted on a selective, product-by-product basis which will afford an adequate opportunity for taking into account the circumstances surrounding each product on which a concession may be considered. Under this selective procedure a particular product may or may not be made the subject of a tariff concession by a particular country. If it is decided to grant a concession on the product, the concession may either take the form of a binding of the tariff against increase or a reduction of the tariff. If the tariff on the product is reduced, the reduction may be made in greater or lesser amount. Thus, in seeking to obtain the substantial reduction in tariffs as a general objective, there is ample flexibility under the selective procedure for taking into account the needs of individual countries and individual industries.

In short, the expectation of a "balanced" negotiating outcome, consisting of reciprocal exchanges of selected tariff concessions between willing partners with the goal of achieving sub-

stantial reductions in tariffs but with no presumption that this would lead to free trade, was built explicitly into the bargaining protocols.

The elimination of tariff preferences (mainly those of the British Commonwealth system, which were often 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. The protocol for the initial 1947 GATT round in Geneva specified the associated rules, and these rules applied to all subsequent GATT rounds. In addition, in order to avoid the problem of "bargaining tariffs" raised on the eve of a round for bargaining purposes, each protocol contained rules against such conduct. For example, in the Torquay Round protocol this rule was stated as follows:

> In order to ensure the success of the negotiations, the participating governments shall refrain from increases in tariffs and other protective measures inconsistent with the principles of the Havana Charter and designed to improve the bargaining position of these governments in preparation for the negotiations. As a general rule, the basis for negotiations shall be the rates of duty in effect on November 15, 1949.

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 in some detail as follows:

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 determining whether, on the basis of the 'principal supplier' rule, a product is to be included in the negotiations, reference should be had not merely to whether a particular member of the Preparatory Committee is, or may become, a principal supplier, but to whether the members of the Committee, taken as a whole, supply, or are likely to supply, a principal part of the product in question. 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 states:

It is believed that the tariff negotiations among the members of the Preparatory Committee can best be conducted in four stages:

First Stage. Each member should transmit to each other member, from which it desires to obtain tariff concessions, ... , a preliminary list of concessions which it proposes to request of such other member...Thirty copies of this list should be sent simultaneously to the Secretariat of the United Nations, which will transmit one copy to each of the other members of the Preparatory Committee.

Second Stage. At the opening of the Second Session of the Preparatory Committee each member should submit a schedule of the proposed concessions which it would be prepared to grant to all other members in the light of the concessions it would have requested from each of them.

Third Stage. Notwithstanding the multilateral character of the negotiations, it will usually be found that only two or three countries will be directly and primarily concerned in the concession on a particular product, and that the interest of other countries, although material, will be secondary. It is, therefore, proposed that the third stage of the negotiations will ordinarily consist of discussions on particular products between two, or possibly three or four countries. Accordingly for the purpose of engaging in such negotiations, each country should to the extent practicable have separate groups of persons competent to negotiate with each of the other countries with which important negotiations are likely to be conducted.

Fourth Stage. The progress of the negotiations should be subject to general review by the Committee as a whole periodically during the negotiations and also in the final stage. General review by the Committee as a whole will enable each member to assess the benefits which is it likely to receive from the series of negotiations in the light of its total contributions, and will offset the tendency toward limiting concessions which results from a comparison of benefits exchanged between two countries alone. It is clear that the general review by the Committee as a whole cannot take the form of a detailed examination of each concession. Rather the Committee would review the general level of tariff reduction achieved as indicated in summary reports. At the same time each member should be entitled to receive, on request, detailed information as to the status of negotiations on particular products between other members in order that it may be in a position to assert an interest in such negotiations.

The later protocols described similar procedures, but evolved along several specific dimensions. First, in later rounds sets of countries that were acceding to the GATT in that round and had not been present in earlier rounds had to be accommodated, and for purposes of assessing the balance of the bargains between existing members and acceding countries there were additional statements concerning the expected valuation of the automatic extension of previous MFN concessions negotiated by existing GATT members that acceding countries would enjoy once they became GATT members. Second, the rules on sharing the 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 govern-

ment 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:

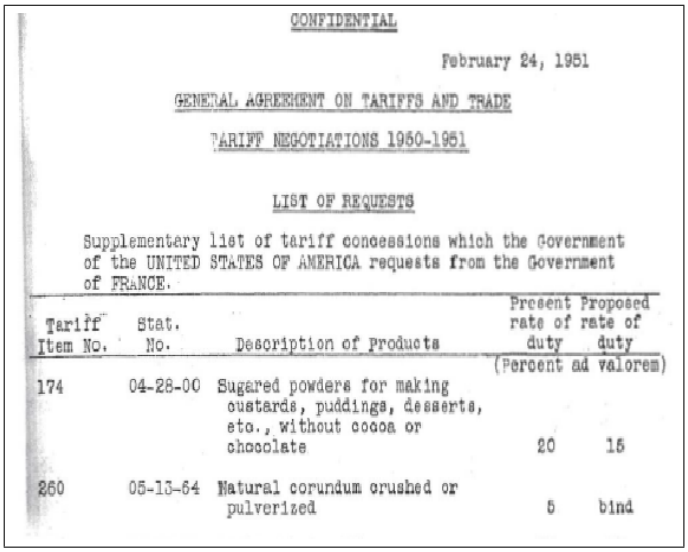
On September 28, 1950 – that is, on the first day of the meeting in Torquay – each government should be ready to make known the concessions it is prepared to offer to each government from which a request for concessions is received...When the offers have been exchanged, negotiations between pairs of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

And the (fourth stage) procedures for distributing information to the set of participating governments about the individual (third stage) bilateral bargaining progress was stated in the Torquay protocol as follows:

In accordance with the successful procedure adopted at Geneva in 1947 and at Annecy in 1949, a "Tariff Negotiations Working Party" will be established at the opening of the conference. This Working Party will be responsible for ascertaining the progress of the negotiations and will make recommendations on questions of procedure and other matters connected with the conduct and conclusion of the negotiations.

An important function of these fourth stage procedures appears to be to facilitate possible adjustments to the final lists of tariff concessions agreed by each country as a result of their bilaterals, in light of agreements reached in other bilaterals to which they were not party, as this passage of the 1949 Annecy protocol reflects:

As each negotiation is concluded, lists of the concessions to be exchanged will be conveyed to the Secretariat and to all other delegations. These results will be subject to review and adjustment in light of the results of other negotiations. Each participating government will arrange through the Secretariat for the distribution to each other participating government of a consolidated list of all concessions granted.



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 (Percent ad valorem)	Proposed rate of duty
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

Figure 1

In short, the GATT protocols for the first five rounds were broadly similar but did exhibit some interesting variation across the various rounds. For the Torquay Round, the extensive form of the bargaining process seems to be as follows. The initial requests exchanged in the first stage were common knowledge. The initial offers made in the second stage in response to first-stage requests were privately observed between the relevant pairs of countries. Each country's initial requests of another country and initial offers to that country formed the first country's initial bargaining proposal to the second country; the initial proposals so constructed were privately observed between pairs of potential bargaining partners, and served as the basis for the start of third stage bilateral offer/counteroffer bargaining, the details of which were made common knowledge to all participants only once the bilateral bargain had concluded (either successfully or in failure). And finally, as the outcomes of newly concluded bilaterals became common knowledge, there was some ability to make adjustments to previously concluded bilaterals.

4. The GATT Bargaining Data

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 U.S.-France bilateral negotiation from that round.

This particular bilateral began on February 6 1951 with an exchange of secret offers (not

shown in Figure 1) between France and the United States 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 United States on February 24 that France supplement its February-6 offer. In this bilateral, France did supplement its offer on March 31 1951, and on that day the United States and France announced publicly the agreement resulting from their bilateral (which amounted to the U.S. tariff cuts offered to France on February 6 and the supplemented France tariff cuts offered to the United States 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 multilateral bargaining behavior of participants in the Round, in Figure 2 we highlight the bargaining behavior of the Unites States in the Torquay Round 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 United States and each of the five countries whose bilateral bargains with the United States 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 United States 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 United States 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 United States at a level which met the U.S. request, New Zealand and Canada each made offers to the United States at a level which did not go all the way to meet the U.S. request and New Zealand subsequently withdrew its offer, and the UK did not respond at all to the U.S. request on this product; while for its part, the United States 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

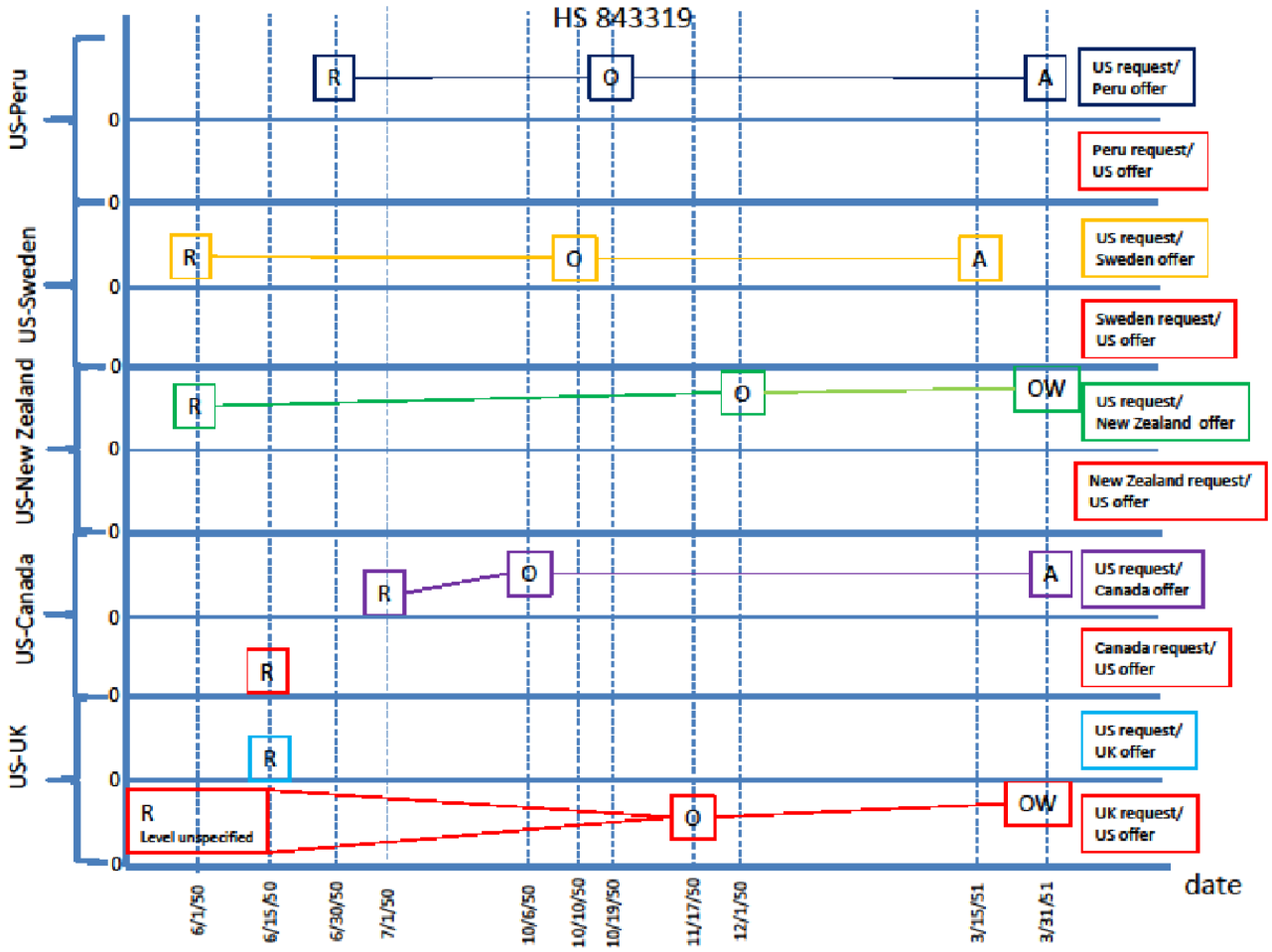


Figure 2

United States subsequently withdrew. The final commitments on HS 843319 tariffs emerging from these five bilaterals were three: a commitment by Canada negotiated with the United States to reduce the Canadian tariff on lawn mowers; a commitment by Peru negotiated with the United States to reduce the Peruvian tariff on lawn mowers; and a commitment by Sweden negotiated with the United States to reduce the Swedish tariff on lawn mowers.

Of course, Figure 2 only depicts the bargaining that the United States was engaged in on this one single product, and each of the bargains across bilateral pairs of countries involved many products; so while the GATT bargaining records in their entirety can be used to describe the full bargaining trade-offs faced by countries in this multilateral setting, Figure 2 itself gives

only a very partial picture of these trade-offs. But even so, Figure 2 does hint at the richness of the multilateral bargaining behavior exhibited by countries in the Torquay Round and helps to illustrate the way in which the bargaining data can be used to uncover this richness.

As Figure 1 illustrates, in addition to the requested and offered tariff levels that each country makes of each other country and the dates of these requests and offers, the GATT bargaining records also contain the present tariff levels, the kind of tariff under discussion (specific, ad valorem, or other special taxes such as primage rates), a detailed description of the product to which the tariff under discussion applies, and a country's tariff item code number and/or statistical classification for that product where available. And, if a country offers a preferential tariff to some countries in addition to the MFN tariff on a particular product, then the preferential tariff rates are included in the bargaining records as well, so that countries can assess how a proposed MFN tariff cut will impact the margin of preference (if any) on the product. In addition, as mentioned by Hoda (2001) in the passage quoted in section 3, prior to the beginning of each round, countries also exchanged detailed product-level by-country import and export data (as well as comprehensive data on existing tariffs). The available GATT bargaining records do not include copies of the actual trade and tariff data exchanged, but the records do indicate the publication names and dates of what was exchanged.

A critical 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. If they do, then the offers and counteroffers can be compared to predictions from theory concerning the number and nature of such offers and counteroffers (see for example, Admati and Perry, 1987, and Cramton, 1992); if they do not, then there is still valuable information in the recorded bargaining *outcomes* in the sense that not only successful bargains but also bargaining failure can be observed, but the official record of offers and counteroffers leading up to success or failure is less likely to be an informative object of study.

While it would be implausible to suppose that there was no communication outside of the formal offers and counteroffers recorded in the GATT bargaining records, at least for the earlier rounds there is reason to believe that the records offer a fairly complete catalog of the tendered offers and counteroffers. This is so for two reasons. First, as we have observed (see note 3), 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. 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, over 95% of the exact tariff bindings to which the United States ultimately agreed in the Torquay Round first appear in the U.S.-Torquay bargaining records as either requests by U.S. bargaining partners or as earlier U.S. offers to some bargaining partner – which is at least consistent with the lack of important informal proposals being tendered outside of the recorded offers and counteroffers.[6]

There are a number of significant challenges that must be overcome before this data can be used for research. Here we briefly discuss several of the most important. In our Data Appendix we provide a more complete discussion of these and other data issues.

First, the bargaining records are irregular and often complex: the bargaining involved many countries in simultaneous bilateral negotiations with many other countries; it covered a large number of products, many of which were the subject of multiple simultaneous bilateral negotiations; it pertained to several kinds of tariffs (e.g., specific, ad valorem); and it had a dynamic time dimension. To facilitate use of the Torquay Round records by researchers, we have created a standardized spreadsheet form into which all of the bargaining records from this round can be entered. In our Data Appendix we include the spreadsheet template and discuss a number of issues associated with it. In future work we hope to create similar spreadsheet forms for the bargaining data for each of the other rounds.

Second, the bargaining records posted on the WTO web page are scanned pdfs of the original bound hard copy records, and need to be converted to machine readable form. For the Torquay Round, these scans are not of sufficiently high quality to allow the reliable use of OCR software for this purpose. As a result, we have hired transcribers to transfer, verbatim, the information

[6] More specifically, only 44 out of the 988 tariff bindings to which the United States agreed in its Torquay bilaterals do not appear as either requests or earlier offers in some U.S. bilateral; and this count reflects an upper bound, because the numbers are calculated at the HS6 level and a lack of match could (and does in the several cases we have checked thus far) 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 U.S. bilateral bargaining records at an earlier date. That said, there is clearly some communication that is not recorded in the bargaining records. For example, final offers that are incorporated into agreements are always announced on the same day by both countries, indicating that at a minimum there was unrecorded communication prior to the date of the final offers to coordinate the timing of the exchange of these offers.

from the scanned bargaining records into Excel, and from here through a combination of our own written code, google translate (to translate into English those few bargaining records that were not originally in English) and manual cut and paste have populated our template spreadsheet with the information from these records. In future work we hope to follow a similar process to convert the scanned bargaining records from the other rounds into research ready form.

Third, creating the needed concordances for the (pre-Harmonized System) tariff and import classifications across countries is a non-trivial exercise. While the bargaining records do include tariff item code numbers and/or statistical classification numbers for each product that is the subject of a negotiation, these codes are taken from each individual country's classifications and cannot themselves be used directly to create a concordance. After experimenting with several ways to make use of these codes to create concordances, we concluded that the most reliable way to create the needed concordance was to focus not on the codes but on the detailed product descriptions included in the bargaining records, and to match these detailed product descriptions to HS 1988 6-digit codes. In the Data Appendix we describe in detail our process for accomplishing this for the Torquay Round bargaining records. For this paper we have created the required concordance for the products involved in the U.S. Torquay bilaterals; in future work we will create the needed concordances for the remaining Torquay Round bargaining records, and we hope to do so for the other rounds as well.

5. Descriptive Statistics and Stylized Facts

This section presents figures and tables that summarize key dimensions of the negotiations during the Torquay round that involved the United States. We start with a complete description of offers and requests for a single product category – sewing machines – and highlight with a pair of figures some patterns which also appear more broadly. We then provide an additional figure and a series of tables of statistics describing the product categories, offers and requests in the U.S.-Torquay negotiations more broadly.

5.1. An Illustrative Example

One of the more striking features of the U.S.-Torquay bargaining data, which the descriptive statistics presented below will bear out, is this: the tariff bargaining seems to be composed of an interesting mix of largely take-or-leave offers on the intensive margin (that is, on the level

of the tariff concession offered on any given product) and back-and-forth bargaining on the

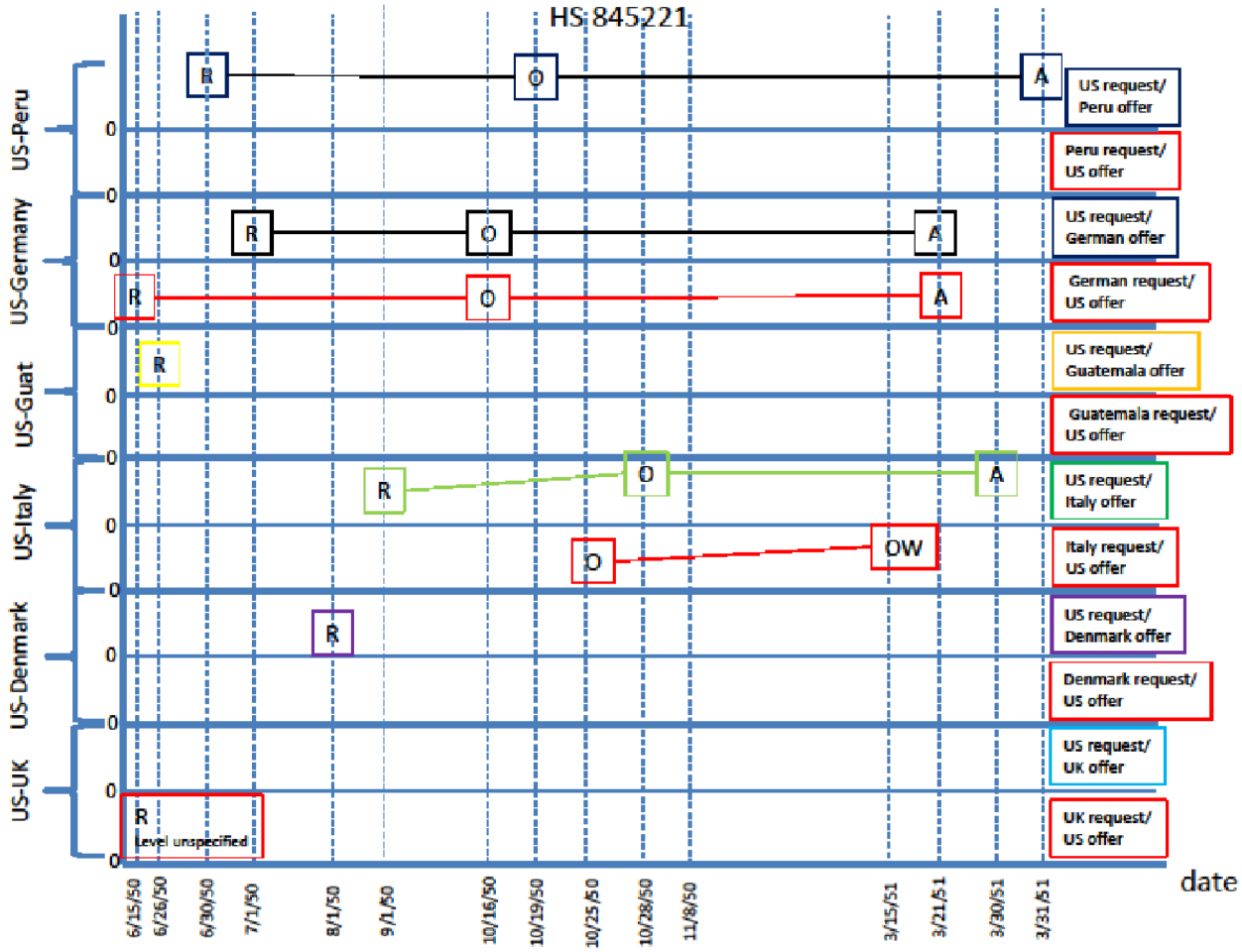


Figure 3

extensive margin (that is, on which tariff concessions will be offered in a given bilateral). We begin by illustrating the two dimensions of this feature with two figures, one that displays a particular example of bargaining at the product level and illustrates our point about the intensive margin, and the other that displays a particular example of bargaining at the bilateral level and illustrates our point about the extensive margin. We also use these figures to point out and illustrate a number of other interesting features that will show up in the descriptive statistics that we next present.

In Figure 3 we depict the complete request-offer sequence involving tariffs on HS 845221 (Sewing machines other than the household type, automatic units) in each of the six U.S.

bilaterals that involved a request and/or offer on this product. Figure 3 depicts the same information for sewing machine tariffs that Figure 2 depicts for lawn mower tariffs, and we could use Figure 2 to make our intensive margin point; but Figure 3 helps to highlight some additional interesting features of the tariff bargaining process as well, so we will use it to make our points here. As with Figure 2, in Figure 3 we denote by the symbol R a request, by O an offer, by OW a withdrawn offer and by A an agreement. And as before, 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 Figure 3 reveals, in bargaining over sewing machine tariffs, whenever an offer is made, it is either accepted at the level at which it is made (as reflected in the horizontal lines connecting the offer O with the final agreement A for these cases) or the offer is withdrawn. Referring back to the bargaining over lawn mower tariffs depicted in Figure 2, the same statement holds for that tariff item. Moreover, notice across these two figures that the same cannot be said for requests: some requests are met at the tariff level at which they are made (as reflected in the horizontal lines connecting the request R all the way to the final agreement A for these cases) but others are met only at higher tariff levels than were requested (as reflected in the upward sloping lines connecting the request R and the offer O for these cases). Figure 3 (and Figure 2) therefore illustrate a first feature that we will show appears systematically in the U.S. Torquay bargaining data: the bargaining entails very little movement on the intensive margin, and in effect takes the form of take-or-leave tariff offers on any given product.

On the other hand, it would be incorrect to conclude from Figure 3 that GATT tariff negotiations exhibit a take-it-or-leave-it bargaining structure. Rather, as we next show, back-and-forth bargaining *is* an important feature of GATT tariff negotiations, but it is only along the *extensive* margin that the back-and-forth bargaining appears as a prevalent feature of the bargaining data.

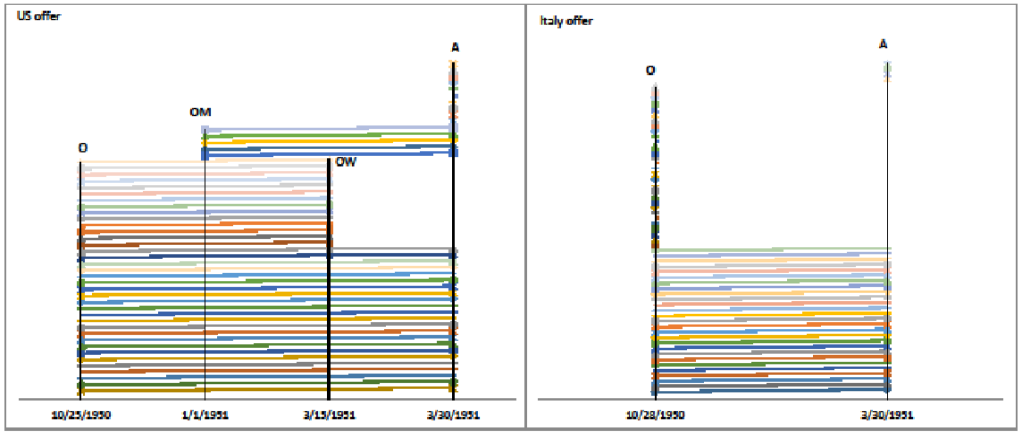


Figure 4

We illustrate the extensive-margin features of tariff bargaining in Figure 4, which focuses on the extensive margin adjustments made by the United States and Italy over the course of their bilateral negotiation. The left panel of Figure 4 shows the evolution of U.S. offers to Italy along the extensive margin over the course of the U.S.-Italy bilateral, while the right panel shows the evolution of Italian offers to the United States along the extensive margin over the course of the bilateral between these two countries. On the horizontal axis we depict the dates at which initial offers (O), modified and withdrawn offers (MO and OW), and agreed tariff concessions (A) were made by the country under consideration. On the vertical axis we depict the complete set of HS6 products that were ever offered in this bilateral by the relevant country, ordered with the earliest offered products first, followed by the later offered products as we move up the vertical axis; and within products offered on the same date ordered with the longest duration offers first, followed by the offers with shorter duration. And for any HS6 product, a horizontal line connects the date it was first offered and the date the offer was withdrawn or accepted by agreement, with a mark on a given date line indicating the date of offer, modification, withdrawal or agreement. As the two panels of Figure 4 show, at the extensive margin the bilateral between the United States and Italy displays back-and-forth adjustment over the course of the negotiation, as new product offers are made while other product offers are withdrawn as the bargain progresses.[7]

[7] In fact, by presenting the tariff line bargaining data aggregated to the HS6 level, Figure 4 understates the degree of extensive margin adjustments, because some extensive margin adjustments occur at finer product levels.

What could account for the intensive/extensive margin distinction illustrated by Figures 3 and 4, and in particular the apparent lack of back-and-forth bargaining along the intensive margin? This is an intriguing question that our paper can raise, and we view providing a definitive answer to this question as an important direction for future research. But we can offer two tentative observations here. First, this feature is consistent with a particular view of GATT bargaining rules which, as we discuss further in later sections, can have the effect of inducing governments to truthfully reveal their preferences with their initial tariff offers, thereby perhaps obviating to some extent the role of back-and-forth bargaining along the intensive margin. More specifically, from this first perspective it might be natural for GATT tariff bargaining to take the form of take-or-leave offers at the intensive margin (the depth of any particular tariff cut) and back-and-forth bargaining on the extensive margin (the number of products included in any bilateral agreement) in order to achieve multilateral reciprocity with the greatest number of tariff cuts in the agreement.[8] And second, it seems likely that the "peril point" literature (see, for example, Destler, 1986, and Brown, 2003), according to which U.S. negotiators had incentive not to agree to U.S. tariff levels below the "peril point" at which a U.S. industry would be harmed and where peril points were estimated ahead of time by the United States Tariff Commission, may be relevant in providing an answer to this question, at least for the United States (and for other countries as well to the extent that these countries followed similar procedures).[9]

Finally, we note two additional interesting features of the bargaining illustrated in Figure 3. A first feature is the apparent occurrence of 2-way tariff negotiations within relatively narrowly defined (6 digit) products. This feature is reflected in the fact that the United States is simultaneously involved in bilateral negotiations to reduce tariffs on sewing machines abroad while at the same time agreeing to reduce its own tariffs on sewing machines. And this is

[8] That said, there is still a puzzle here: standard efficiency considerations would suggest that no adjustments away from efficient tariff levels on the intensive margin with all adjustments away from efficient tariff levels concentrated at the extensive margin could not be optimal. So there remains a challenge to understand why governments would behave in this way.

[9] For example, from this perspective it seems plausible that U.S. negotiators might have arrived at Torquay with floors below which they preferred not to make offers, and a possible negotiator strategy might then be to go to the floor straightaway (if the negotiator didn't get bonus points for staying strictly above the floor). If peril points play an important role, then one might see more intensive margin activity in later rounds, in which perhaps peril point considerations were not as prominent, and in earlier rounds for countries that did not institute similar procedures for their own tariff negotiators. We leave investigation of these time series and cross section issues, as well as investigation into other possible explanations for the intensive/extensive margin features of GATT tariff bargaining, for future work.

particularly striking in the U.S. bilateral with Germany, where as Figure 3 illustrates there was 2-way bargaining over tariffs on this narrowly defined product within the same bilateral. We will show that this feature can be seen more broadly in the bargaining data, and we will later explore the extent to which the prevalence of this kind of 2-way tariff bargaining over narrowly defined products is more prevalent than would be expected based on principal supplier trading relationships and, if it is, consider possible explanations for why it might be.

And second, notice that as Figure 3 depicts, the United States made an offer to Germany which met the German request, and the United States made the same offer to Italy (who had not requested a tariff cut on sewing machines from the United States) but subsequently withdrew its offer from this country. We will show that this kind of behavior is also present in the broader bargaining data. Why might a country extend an offer to a second country that it has already made to a first country? It is possible that this might reflect an effort by the United States to be "paid twice" for its single MFN tariff cut. But other interpretations are also possible. For example, as we discuss later, Italy might potentially place value on such an offer from the United States even if it anticipated (or even once it knew) that the U.S. would agree to reduce its (MFN) tariff on this product in any event in another bilateral (e.g., with Germany), because by securing the U.S. offer Italy would then have secured an "Initial Negotiating Right" (INR) with the United States on this U.S. tariff cut, and INRs provide those countries that possess them with special rights in any subsequent dispute or renegotiation that might arise concerning the tariff commitment in question. We will return to some of these more subtle institutional issues at later points in the paper.

5.2. Descriptive Statistics and Stylized Facts

We now describe the features of the U.S.-Torquay negotiations more broadly. There were 38 participating countries in the Torquay Round.[10] Of the 703 possible bilaterals, 588 were initiated. The United States was itself engaged in bilateral negotiations with 24 of the 38 countries (i.e., made initial requests of and/or received initial requests from 24 of these countries).[11] It

[10] The countries were Austria, Australia, 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.

[11] The countries present at Torquay with which the United States did not negotiate at Torquay were Burma, Ceylon, Chile, Finland, Greece, Liberia, Nicaragua, Pakistan, Philippines, Southern Rhodesia, Syria-Lebanon and Uruguay.

reached final agreement with 15 of them.

In Figure 5 we provide an overall view 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) – in each of the 24 bilateral negotiations in which the United States was involved at Torquay. For each U.S. negotiating partner listed on the vertical axis, the bottom (dark blue) line displays the actions relating to

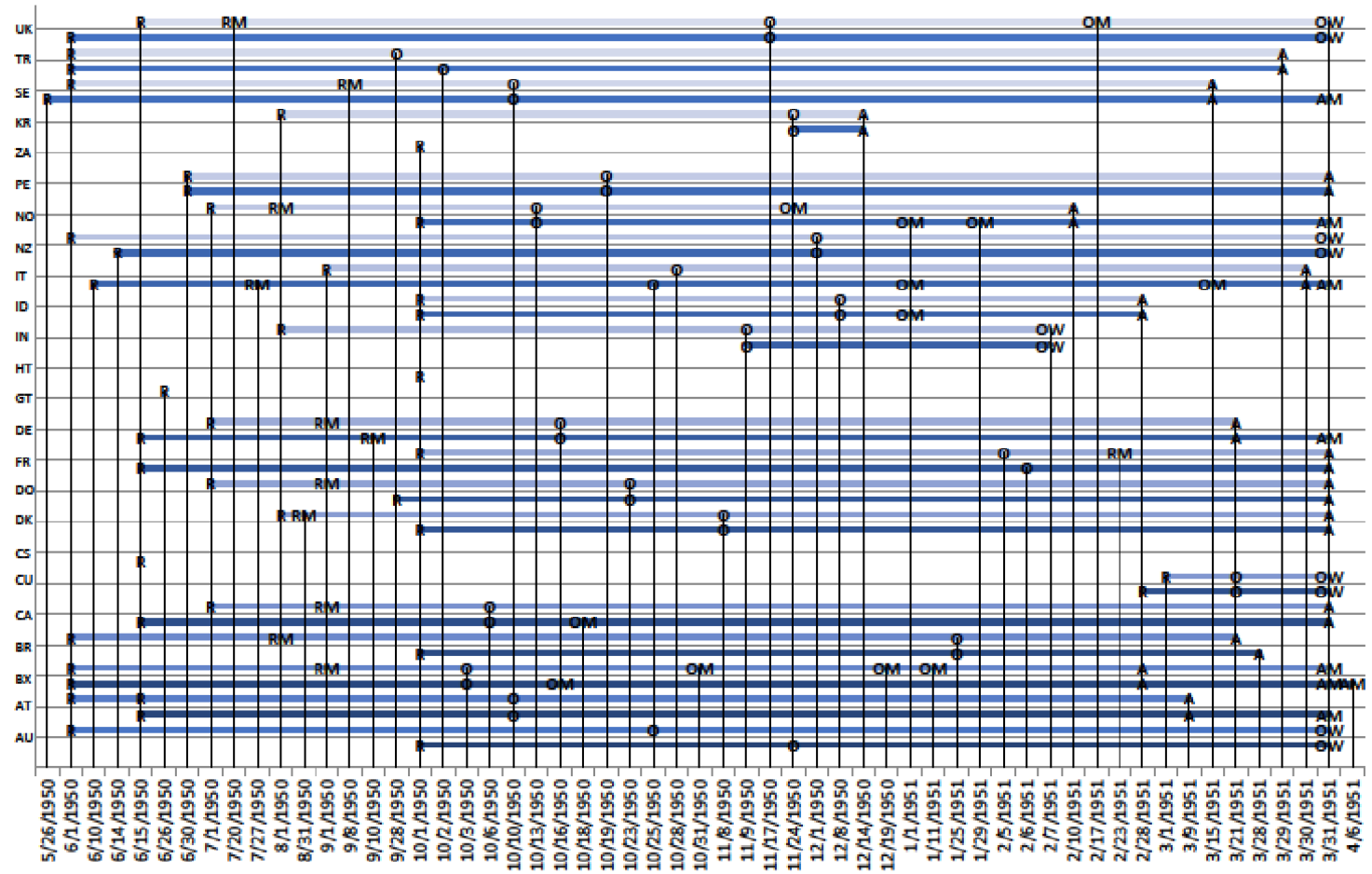


Figure 5

the U.S. tariff – the offers by the United States and the requests of its negotiating partners – while the top (light blue) line displays the actions relating to the foreign negotiating partner's tariff – the requests by the United States and the offers of its negotiating partners.

The Torquay protocol specified that initial requests were to be transmitted no later than

June 15, 1950, while as we have noted above, the protocol stated: "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." Figure 5 reveals substantial variation in the timing and actions across the U.S. bilaterals, and many of the initial requests were transmitted after the June 15 deadline specified in the protocol; but notice that (with the exception of the U.S.-Cuba bilateral) all initial requests occur by 10/1/1950, while (with the exception of the offer by Turkey on 9/28/1950) all offers and offer modifications occur after that date.[12] Recalling that in the Torquay Round the offer stage marked the beginning of bilateral bargaining, it is then apparent from Figure 5 that after the (publicly observed) requests were initially exchanged and in some cases modified, the process of back-and-forth bargaining occurred in the bilaterals almost entirely through a sequence of offers and modifications to (or withdrawals of) those offers, rather than through further modifications of requests as well. In fact, only one modification to requests occurs after 10/1/1950 in any U.S. bilateral, and that occurs on 2/28/1951 in the U.S.-France bilateral.

This raises an interesting question about the mechanics of the bargaining and the choices made by the bargaining countries. Once the initial requests are on the table and the offer stage is set to commence, the initial offers made by each country constitute in combination with their initial requests of each other a pair of fully specified initial proposals for that bilateral. When these proposals are not in agreement, the two countries need to find a way to make counter-proposals which might move them toward agreement. There are in effect two possibilities. A first possibility is for a country to keep its own offer unchanged and to modify its request of its bargaining partner: as Figure 5 reveals, this strategy was used in the U.S. Torquay bilaterals, but only once, on 2/28/1951 in the U.S.-France bilateral. A second possibility is for a country to take the offer of its bargaining partner as given, and to respond to this with a modified offer of its own: as Figure 5 reveals, this is the predominant method that countries chose to adjust

[12] A caveat. Currently we are missing dates for five requests that could potentially have occurred after 10/1/1950: the initial requests of both the United States and Indonesia in the U.S.-Indonesia bilateral, the initial requests of Denmark in the U.S.-Denmark bilateral, the initial requests of Brazil in the U.S.-Brazil bilateral and the initial requests of Australia in the U.S.-Australia bilateral. For now we have placed these requests in Figure 5 as occurring on 10/1/1950, the latest recorded date at which a request occurred in any U.S. bilateral. While it is possible that further data efforts will reveal that these five requests occurred later than the date we have assigned them in Figure 5, we can say with certainty that these five requests all occurred prior to any offers being made in their respective bilaterals, and so the point we make in the text is not particularly sensitive to this caveat.

their proposals in the U.S. Torquay bilaterals.[13] That is, the requests appear to have played the role of providing public information about the interests of all parties as potential buyers of the tariff cuts of others, while once bilateral bargaining began between any two countries it was (with one exception) the modification of own-tariff-cut offers on the table at any date that in combination with the bargaining partner's offer constituted the preferred method for making counter-proposals through the course of the negotiation.[14]

Why would countries choose overwhelmingly to make counter-proposals by modifying their own-tariff-cut offers rather than modifying the tariff-cut requests they make of their bargaining partners? This is another intriguing question that our paper can raise, and we view providing a definitive answer to this question as an important direction for future research. But we can offer a tentative observation here. If, as we have suggested previously, GATT tariff bargaining takes the form of take-or-leave offers at the intensive margin (the depth of any particular tariff cut) and back-and-forth bargaining on the extensive margin (the number of products included in any bilateral agreement) in order to achieve multilateral reciprocity with the greatest number of tariff cuts in the agreement, then the goal of counter-proposals is to achieve "balanced" bilaterals that are consistent with multilateral reciprocity for each country; and in this case, it is likely to be more straightforward to modify one's own offer in order to achieve balance against the existing offer of one's bargaining partner than to attempt to achieve this balance by requesting modifications to the bargaining partner's offer (because for example the ramifications of such requests for the bargaining partner with regard to its other bilaterals are likely to be unknown to the country making these requests).

Another interesting feature revealed by Figure 5 is that there are some bilateral bargains that appear to sit dormant for long periods of time and yet ultimately end in agreement. For example, the United States 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

[13] There is of course a third possibility, which is to modify both the request and the offer, but this strategy was never used in the U.S. Torquay bilaterals.

[14] There is also the question of how to interpret the proposals when the initial offers are staggered in time. For example, as Figure 5 shows, in the U.S.-Turkey bilateral Turkey made its initial offer on 9/28/1950 while the United States made its initial offer 10/2/1950. The United States's implied proposal might then be interpreted as either its offer and its request, or as its offer and Turkey's offer. Such staggered initial offers might then in effect collapse the offer and offer modification into one action for the United States. Of course, an interesting question here is whether the short period of time over which those initial offers that were staggered (never more than 5 days) would allow the second-mover time to react to the offer of the first mover. This an related issues will be explored in future research.

agreement on 3/31/1951. A likely interpretation is that the initial proposals 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. Notice also from Figure 5 that there are a number of agreements that are themselves modified late in the round (AM). These modifications appear to reflect the stage-4 adjustments that it was anticipated might be necessary as information became available about other agreements that were concluded in the round. Together, these features seem to reflect important multilateral dimensions of the bargaining.

We next turn to Tables 1 and 2, which detail the number of HS6 level product categories involved in negotiations for U.S. tariff cuts ("sales") and negotiating partner tariff cuts ("purchases"), respectively. For each of these tables, the first column reports the number of HS6 products across all negotiating partners, the second column reports the number of HS6 product-negotiating partner pairs, and the third through sixth columns report summary statistics by negotiating partner on the number of HS6 products.

As the first row of Table 1 reveals, the United States received initial requests to cut its tariffs on 1,584 HS6 products, and received a total across its bargaining partners of 2,630 such requests. Hence, for those products on which the United States received any requests at Torquay, on average it entertained requests from 1.66 countries on a given product. The first row of Table 1 also reports that the average partner sought U.S. tariff cuts on 110 HS6 level product categories. The first row of Table 2 depicts the analogous information on the U.S. requests of its bargaining partners. The United States made initial requests of tariff cuts from its bargaining partners on 1,274 HS6 products, and made a total across bargaining partners of 2,361 such requests, implying that for those products on which the United States made any requests at Torquay, on average it made requests of 1.85 countries on a given product. And the United States sought tariff cuts on 98 HS6 level product categories from its average partner.

The third rows of Tables 1 and 2 provide analogous information on offers. According to Table 1, the United States made initial offers to cut its tariffs on 1,353 HS6 products, and made a total across its bargaining partners of 1,944 such offers. For those products on which the United States made any offer at Torquay, therefore, on average it made offers to 1.44 countries on a given product; and the average partner received offers from the United States on 81 HS6 products. According to Table 2, the United States received initial offers from its bargaining partners to cut their tariffs on 1,090 HS6 products, and received a total across its bargaining partners of 1,815 such offers. Hence, for those products on which the United States received

any offer at Torquay, on average it received offers from 1.67 countries on a given product; and the average partner made offers to the United States on 76 HS6 products.

The second and fourth rows of Tables 1 and 2 reveal the degree of adjustments to requests and offers at the extensive margin over the course of the bargaining. Through the course of the negotiations, after the initial offer and prior to a final agreement, the United States modified both its requests and its offers on approximately 15% of the HS6 products on which it made initial requests and offers. Its bargaining partners modified their offers to the United States on approximately 12% of the HS6 products for which they made initial offers, and modified their requests of the United States on approximately 4% of the HS6 products for which they made initial requests.

Tables 1 and 2 also reveal information about the responses to offers and requests. While the United States entertained requests for tariff cuts on 1,584 HS6 products, it offered tariff cuts on 1,353 HS6 products, 891 of which correspond to HS6 products that were requested by some bargaining partner, and 462 of which correspond to products that were not requested by any bargaining partner. And while the United States requested tariff cuts from its bargaining partners on 1,274 HS6 products, it received offers on 1,090 HS6 products, 970 of which corresponded to HS6 products that it had requested, and 120 of which corresponded to HS6 products that it had not requested. Moreover, of the 1,944 initial offers that the United States made across its bargaining partners, 711 of these were made to bargaining partners on HS6 products which they themselves had requested, while the remaining 1,233 of these were made to bargaining partners on HS6 products that they themselves had not requested; by contrast, of the 1,815 initial offers that the United States received from its bargaining partners, 1,499 of these were received from bargaining partners that were responding to a U.S. request on this HS6 product, while the remaining 316 of these were received from bargaining partners that had not received a U.S. request on this HS6 product. In the end, the United States agreed to final concessions on 983 of the 1,353 HS6 products that it had offered, while its bargaining partners agreed to final concessions in their bilaterals with the United States on 857 of the 1,090 HS6 products that they had offered the United States. Most, but not all, products that reached a final agreement were initially requested: 32.8% of the agreed U.S. tariff cuts were on HS6 products that were not requested by its negotiating partners, while 10.8% of the tariff cuts agreed to by U.S. negotiating partners in their bilaterals with the United States were on HS6 products that were not requested by the United States.

We next present information on the degree of "two-way" exchanges of tariff cuts for similar products. This information is contained in Table 3, which shows that the United States was both fielding and seeking requests for tariff cuts on the same HS6 product category for 510 HS6 products, and of these cases, 160 involved the same country. Hence, for 32% of the HS6 products on which the United States received requests, it was simultaneously making requests of its trading partners on those products; and for 40% of the HS6 products on which the United States made a request, it was simultaneously receiving requests from its trading partners on those products. And for roughly 10% of the HS6 products on which the United States either received or made a request, there was a two-way exchange of requests over this product within a U.S. bilateral.

Tables 4 and 5 describe the magnitude of the tariff concessions requested and of the finalized (agreed) offers for U.S. sales (i.e., for requests and offers that refer to U.S. tariffs) and U.S. purchases (i.e., for requests and offers that refer to the tariffs of U.S. bargaining partners), respectively. As the top and bottom rows of Tables 4 and 5 reveal, initial requests sought tariff cuts that amounted to roughly 40% of the existing tariff level for sales and roughly 30% of the existing tariff level for purchases. The set of final concessions achieved tariff cuts amounting to roughly 33% of the existing tariff for sales, and to roughly 13% of the existing tariff for purchases. The middle three rows of Tables 4 and 5 reveal that the levels of the initial offers in effect determined the levels of the finalized concessions. These averages reflect the apparent lack of adjustment along the intensive margin between the initial offers and the finalized concessions.

In Tables 6 and 7 we present evidence on the amount of "back and forth" offers and counter-offers during negotiations, with Table 6 focused on U.S. sales (i.e., for requests and offers that refer to U.S. tariffs) and Table 7 focused on U.S. purchases (i.e., for requests and offers that refer to the tariffs of U.S. bargaining partners). As Table 6 shows, on HS6 products for which the United States made at least one offer in the bilateral, the maximum number of offers it made on that product is 3 and the average is 1.6; for requests the analogous numbers are 2 and 1. Conditional on a final agreement reached on that HS6 product in that bilateral, the maximum number of offers the United States made on that product is again 3 but the average is now 2; and for requests the analogous numbers are still 2 and 1. Table 6 also reports the data on the simple counts of U.S. offers and counter-offers for a country pair (but not also per good). For bilaterals where the United States made at least one offer, the average number of U.S. offers per bilateral is 2.4, with a maximum number of 5, and conditional on a final

agreement reached between the two countries in that bilateral the analogous numbers are 2.9 and 5. And the analogous numbers of U.S. requests for a country pair are an average of 1.2 and a maximum of 3 independently of whether or not a final agreement is reached. Table 7 shows the analogous information for the requests and offers that refer to the tariffs of U.S. bargaining partners, and depicts broadly similar patterns.

Tables 8 and 9 show that, for both U.S. sales (i.e., for requests and offers that refer to U.S. tariffs) and U.S. purchases (i.e., for requests and offers that refer to the tariffs of U.S. bargaining partners), the modal HS6 level product category was under negotiation with only one partner. At the same time, a significant number of HS6 level product categories were at play with multiple numbers of negotiating partners indicating important linkages across negotiations. An interesting feature of these tables is that, while the Table 8 numbers for U.S. sales seem broadly consistent with a principal supplier rule in which the United States engages in negotiations over its tariffs only with the principal supplier(s) of a given HS6 product into its market, the Table 9 numbers for U.S. purchases suggest that when the United States seeks tariff cuts of its trading partners on a given HS6 product, it singles out a surprisingly small number of markets to go after and hence may limit the number of trading partner's it engages below the number of trading partners into which it is the principal supplier of the HS6 product under consideration.[15]

Tables 10 and 11 describe the amount of diversity of products under negotiation between the United States and its partners in terms of broad (HS1) product categories. For U.S. sales (i.e., for requests and offers that refer to U.S. tariffs), the set of HS1 categories with final concessions averaged 3.92 (out of a possible 10) per country, with slightly more, 5.58, in play at some point during negotiations. For U.S. purchases (i.e., for requests and offers that refer to the tariffs of U.S. bargaining partners), the analogous numbers are 5.38 and 6.88. This suggests that between the product categories on which the United States was offering tariff cuts of its own and the product categories on which U.S. trading partners were offering to cut their own tariffs in their bilaterals with the United States, the coverage of U.S. bilaterals in Torquay spanned a broad set of product categories.

Finally, in Table 12 we provide additional evidence that the most important dimension

[15] To check how the distributions presented in Tables 8 and 9 compare with the distributions of principal suppliers, we need the relevant trade data. We have acquired and are currently cleaning the trade data that was exchanged between countries prior to the Torquay Round, and will add this comparison in future drafts of the paper.

for negotiations was on the extensive margin, that is dropping and/or adding products from the negotiation, by showing the changes on the intensive margin were small in magnitude. In particular, the average final offer was very close to the initial offer, indicating that movement on the intensive margin was secondary to adjustments on the extensive margin.[16]

We close this section by summarizing the main take-away points from the figures and tables we have just presented. First, the bargaining appears to have taken the form of essentially take-or-leave offers on the intensive margin and back-and-forth offers and counter-offers on the extensive margin. Second, the numbers of back-and-forth offers and counter-offers 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. Third, the mechanics of altering proposals through time overwhelmingly takes the form of modifications to offers rather than modifications of requests. Fourth, there is substantial two-way bargaining within narrow product categories, and significant numbers of these two-way bargains occur within a single bilateral. Fifth, while the set of requests a country entertains seems to conform with what might be expected on the basis of the principal supplier rule, when it comes to deciding which bargaining partners to make requests of on a given product there appears to be a more narrow focus than principal supplier considerations would dictate. And sixth, substantial numbers of offers are made that were not requested by the country to which the offer is extended, and in significant numbers of cases these offers are made without a request from any bargaining partner.

These stylized facts describe a rich array of features exhibited by GATT tariff bargaining that present a challenge for bargaining theory to explain, and no single modeling approach will

[16] Of course, our focus on the averages reported in Table 12 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. For example, in the U.S.-German bilateral, the initial U.S. 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 United States 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 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 U.S. offer and the (modified) final U.S. tariff, when in fact at the 10 digit product level there is no intensive margin movement and only an extensive margin movement.

likely account for all of these features. But models that can account for subsets of these features can provide a lens from which to view the data and a more structured approach to interpreting the data, and can thereby be useful as a way to begin to understand the underlying forces that drive bargaining behavior in this complex environment. In the next section we develop our approach for providing a first more structured look at the bargaining data.

6. Analyzing the GATT Bargaining Data

There are (at least) two complementary approaches to analyzing the GATT bargaining data. A first approach emphasizes strict adherence to the GATT/WTO institutional features of reciprocity and MFN. The benefit of this approach is that it can afford a powerful simplification to the GATT bargaining problem and thereby provide structure to the analysis of the bargaining data, as we next demonstrate using the framework from section 2. In this paper we emphasize this approach. A second approach confronts the complications that arise when adherence to reciprocity and/or MFN is not strict. This approach uses models of bilateral bargaining with externalities, informed by other institutional features of the GATT bargaining setting, to analyze the bargaining data. We leave this second approach to future work.

6.1. Strict Adherence to Reciprocity and MFN

Two widely emphasized institutional features of the GATT/WTO are reciprocity and nondiscrimination (MFN). These two pillars of the GATT architecture can, in theory, dramatically simplify the tariff bargaining problem. First, strict adherence to reciprocity simplifies strategic considerations resulting in an intuitive dominant bargaining strategy. Secondly, when combined with MFN, strict adherence to reciprocity neutralizes third party externalities. But there is also a potential cost: if GATT bargaining partners are asymmetric in a sense described below, the strict adherence to reciprocity and MFN that is necessary for these results will itself prevent governments from reaching the efficiency frontier. To develop these findings, we return to the framework laid out in section 2.

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 of

equal value to changes in the volume of its exports. The notion of reciprocity arises in two places in the GATT/WTO. First, as we have indicated in section 3, as a norm of negotiations governments seek a "balance of concessions," 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.

We now state a formal definition of reciprocity. Suppose that, beginning from an initial pair of tariffs, (τ^0, τ^{*0}), a tariff negotiation results in a change to a new pair of tariffs, (τ^1, τ^{*1}). Denoting the initial world and domestic local prices as $\widetilde{p}^{w0} \equiv \widetilde{p}^{w}(\tau^0, \tau^{*0})$ and $p^0 \equiv p(\tau^0, \widetilde{p}^{w0})$, and the new world and domestic local prices as $\widetilde{p}^{w1} \equiv \widetilde{p}^{w}(\tau^1, \tau^{*1})$ and $p^1 \equiv p(\tau^1, \widetilde{p}^{w1})$, we say that the tariff changes conform to *the principle of reciprocity* provided that

$$\widetilde{p}^{w0}[M_x(p^1, \widetilde{p}^{w1}) - M_x(p^0, \widetilde{p}^{w0})] = [E_y(p^1, \widetilde{p}^{w1}) - E_y(p^0, \widetilde{p}^{w0})], \tag{6.1}$$

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

$$[\widetilde{p}^{w1} - \widetilde{p}^{w0}]M_x(p^1, \widetilde{p}^{w1}) = 0. \tag{6.2}$$

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 (τ, τ^*) 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

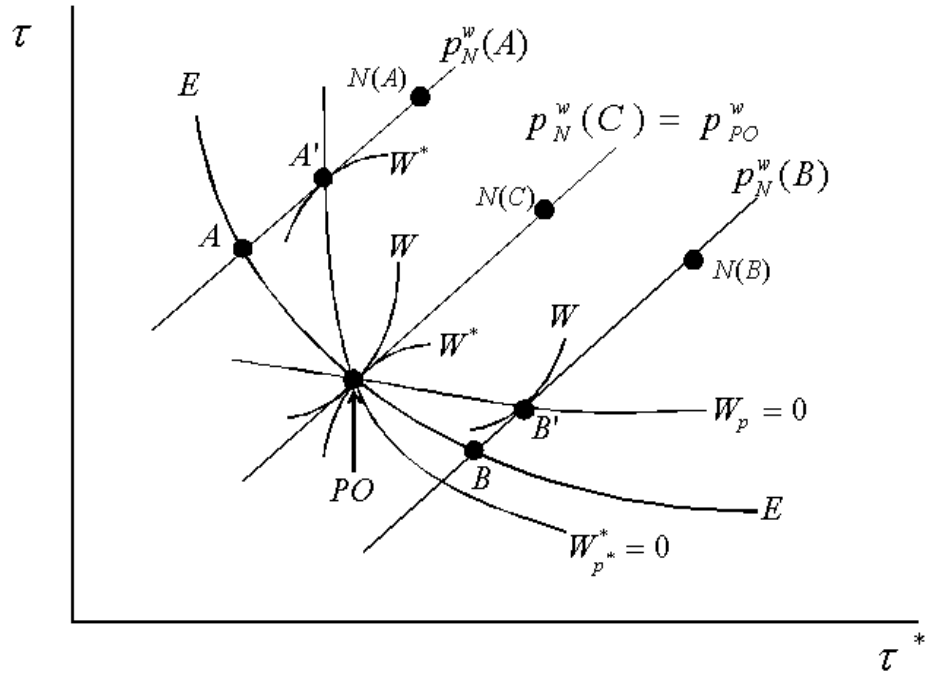


Figure 6

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.[17]

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 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. The key features of the argument are illustrated in Figure 6 (which is an adaptation of Figure 4 in

[17]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.

Bagwell and Staiger, 1999).[18]

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 6, which depicts τ on the vertical axis and τ^* 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 6 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 6, 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 above, 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

[18] With some additional structure, this property implies that a researcher could invert tariff offers to estimate government preferences.

longer agree on the desired volume of trade; in particular, the foreign government's desired trade volume (labeled as A') is less than the desired trade volume of the domestic government (not labeled). 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 full information efficiency frontier (labeled EE in Figure 6).[19]

Reciprocity with MFN We next consider MFN, and describe how reciprocity and MFN together can eliminate bargaining externalities across bargaining pairs, thereby converting a potentially complex multilateral bargaining problem into a comparatively straightforward set of bilateral bargains. To develop this point, we extend the framework of section 2 to a world of three countries. For this purpose we once again paraphrase the treatment in Bagwell and Staiger (2010a), and refer 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 τ^{*i}), while the domestic country can set tariffs on its imports of good x from the two foreign countries. Notice that if the domestic country applies the tariff τ^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 $p = \tau^2 p^{w2}$

[19] We have developed these arguments allowing for the possibility that governments have private information over their political preferences, but we conjecture that the same arguments apply 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, we note that 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.

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, $\widetilde{p}^w(\tau, \tau^{*1}, \tau^{*2})$, must prevail; consequently, we may continue to express government preferences with the simple representation $W(p, \widetilde{p}^w)$, $W^{*1}(p^{*1}, \widetilde{p}^w)$ and $W^{*2}(p^{*2}, \widetilde{p}^w)$, the same representation that we used in the 2-country setting.

In a multilateral world, the MFN principle ensures that the international externality at the root of the problem to be solved by a trade agreement continues to exhibit the same structure as in the simpler 2-country setting. This suggests that, in the company of MFN, the affinity between reciprocity and truth telling described above might extend to a multilateral setting. We can show that this is indeed the case.

In addition, MFN and reciprocity together eliminate third-country spillovers from bilateral tariff bargaining. To see why, 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 τ and τ^{*1} which leaves the terms of trade $\widetilde{p}^w(\tau, \tau^{*1}, \tau^{*2})$ 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 τ^{*2} held fixed, if the negotiation between the domestic country and foreign-country 1 abides by MFN (so that a single equilibrium world price $\widetilde{p}^w$ prevails) and reciprocity (so that $\widetilde{p}^w$ is unaltered) then p^{*2} and therefore $W^{*2}(p^{*2}, \widetilde{p}^w)$ 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.[20]

[20] 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 if reciprocity and MFN induce the features we emphasize above. Our conjecture is that the principal supplier rule might still play two important roles in this environment: first, 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; and second, even if all third-party spillovers were eliminated by a strict adherence to MFN and reciprocity, countries on the "long" side of the market for tariff cuts and who therefore face the prospect of being rationed in their ability to find enough willing bargaining partners might naturally employ the principal supplier rule to prioritize their bargaining efforts. In any case we view the development of a compelling answer to this question as an important

In this general manner, reciprocity and MFN together can eliminate bargaining externalities across bargaining pairs, while at the same time inducing truth-telling on the part of governments, thereby converting a potentially complex multilateral bargaining problem with private information into a comparatively straightforward set of full-information bilateral bargains. 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 full information efficiency frontier.

6.2. Application to GATT Bargaining Data

The preceding discussion suggests a pragmatic solution for governments to what might otherwise be an insurmountably complicated bargaining problem: endeavor to set up the GATT multilateral bargaining problem as a collection of simultaneous bilateral bargains that adhere strictly to the twin pillars of reciprocity and MFN. In the following section, we will attempt to exploit this insight as a basis for analysis of the GATT bargaining data, building from the model developed above.[21] In particular, under the assumption of strict adherence to reciprocity and MFN, the initial Torquay Round offers should correspond to each government's politically optimal reaction curve tariffs on a product-by-product basis for that round. By comparing these initial offers to the final agreed tariff concessions in the round, we can then construct measures of the success of the Torquay Round.[22]

7. Data Analysis

Building on the discussion in section 6.1, we now offer a more structured analysis of the U.S. Torquay bargaining data. To this end, we develop further our earlier discussion along a number

task for future research.

[21] 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. We believe that the key features can be extended to such environments along the lines of Bagwell and Staiger (2002, Appendix B), but this extension remains an important task for future research.

[22] More ambitiously, by imposing additional structure one could then use this information to recover government preferences and construct the complete-information efficiency frontier for the round, against which the actual outcome of the round can be judged and the performance of counter-factual bargaining protocols can be assessed. For example, adopting the political economy model of Grossman and Helpman (1994), the assumption of strict adherence to reciprocity and MFN would allow us to utilize the initial offers from a given GATT round to estimate the value that each government places on lobby contributions along the lines of Goldberg and Maggi (1999), and with these estimates we could then construct the efficiency frontier for the round. We leave this more ambitious program for future research.

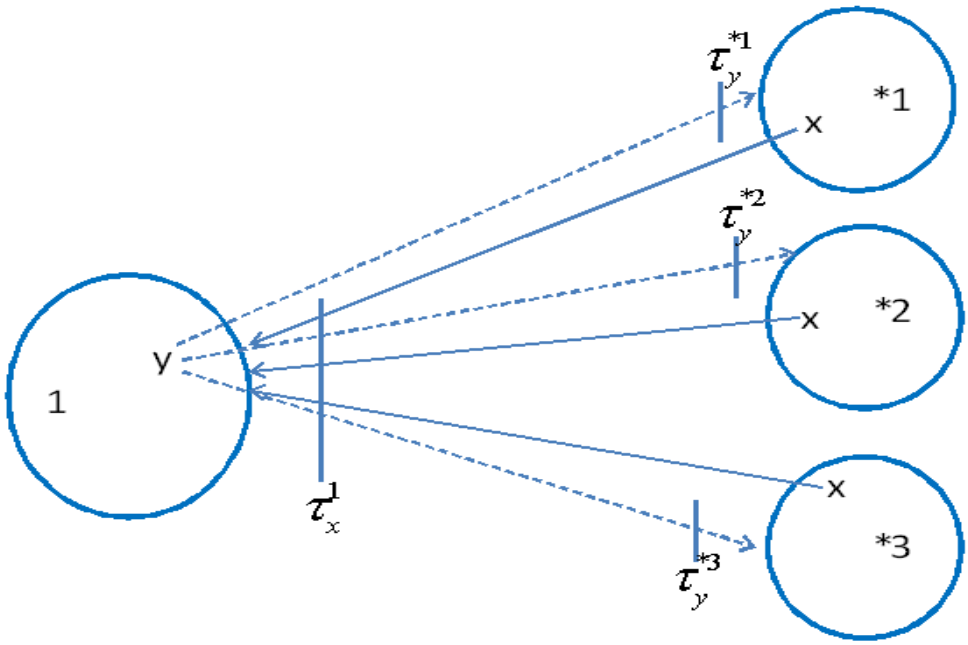


Figure 7

of dimensions to tighten the links from theory to data analysis and in each case then present our analysis of the U.S. Torquay bargaining data.

7.1. Developing Further Theoretical Guidance for Data Analysis

We first draw a distinction between bilateral and multilateral reciprocity, a distinction that, as we describe further in section 7.2, was emphasized in GATT writings at the time of the early rounds and that will play an important role in our discussion below. We argue now that if a country's tariffs satisfy MFN and if in addition the bargaining outcomes lead to changes in the country's trade volumes that satisfy strict *multilateral* – but not necessarily *bilateral* – reciprocity, then (i) it is a dominant strategy for the country to truthfully reveal its (efficient-under-symmetry) politically-optimal-reaction-curve tariffs in its initial offers, and (ii) the free rider problem should not arise and bargaining externalities should not cause any problems for bargaining. To sketch the logic of these results, we build on the discussion from section 6.1 and extend it to illustrate the notion of multilateral-but-not-necessarily-bilateral reciprocity.

In particular, we consider a 4-country extension of the 2-good general equilibrium trade model described in section 6.1. Figure 7 illustrates the pattern of trade and tariff protection

for the domestic country 1 and its three foreign trading partners $*1$, $*2$ and $*3$. It is easy to see that the equilibrium world price is decreasing in the domestic country tariff and increasing in each of the foreign country tariffs:

$$\widetilde{p}^w \equiv \widetilde{p}^w(\overset{(-)}{\tau_x^1}, \overset{(+)}{\tau_y^{*1}}, \overset{(+)}{\tau_y^{*2}}, \overset{(+)}{\tau_y^{*3}}).$$

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 us first describe what bilateral reciprocity between domestic country 1 and each of its two bargaining partners would look like in this 4-country setting. For example if, in combination with the initial tariff level $\hat{\tau}_y^{*3}$, the three tariff levels $\bar{\tau}_x^1$, $\bar{\tau}_y^{*1}$ and $\bar{\tau}_y^{*2}$ (with $\bar{\tau}_x^1 < \hat{\tau}_x^1$, $\bar{\tau}_y^{*1} < \hat{\tau}_y^{*1}$ and $\bar{\tau}_y^{*2} < \hat{\tau}_y^{*2}$) would preserve the world price at its initial level, so that $\widetilde{p}^w(\bar{\tau}_x^1, \bar{\tau}_y^{*1}, \bar{\tau}_y^{*2}, \hat{\tau}_y^{*3}) = \widetilde{p}^w(\hat{\tau}_x^1, \hat{\tau}_y^{*1}, \hat{\tau}_y^{*2}, \hat{\tau}_y^{*3})$, then the domestic country could first reach a reciprocal deal with foreign country $*1$ in which it agrees to lower its tariff from $\hat{\tau}_x^1$ to $\tilde{\tau}_x^1$ in exchange for a reciprocal reduction in the tariff of foreign country $*1$ from $\hat{\tau}_y^{*1}$ to $\bar{\tau}_y^{*1}$ which preserved the level of $\widetilde{p}^w$. And then the domestic country could turn to foreign country $*2$ and negotiate a reciprocal deal with foreign country $*2$ as well, in which the domestic country agrees to a further lowering of its tariff from $\tilde{\tau}_x^1$ to $\bar{\tau}_x^1$ in exchange for a reciprocal reduction in the tariff of foreign country $*2$ from $\hat{\tau}_y^{*2}$ to $\bar{\tau}_y^{*2}$, again preserving the level of $\widetilde{p}^w$. Each of the just-described bilaterals satisfies reciprocity (and each therefore leaves the level of $\widetilde{p}^w$ unchanged), and hence the bargain described conforms to *bilateral reciprocity*, in the sense that the bilateral between the domestic country and foreign county $*1$ involves a reciprocal exchange of tariff cuts between the domestic country and foreign county $*1$, while the bilateral between the domestic country and foreign county $*2$ involves a reciprocal exchange of tariff cuts between the domestic country and foreign county $*2$.

Proceeding now as in section 6.1, it is direct to verify that, if each of domestic country 1's bilaterals must abide by MFN and satisfy (bilateral) reciprocity, truth-telling is a dominant strategy in each bilateral and there can be no free rider problems. That is, with the world price fixed under bilateral reciprocity, it follows that (i) it is a dominant strategy for countries 1, $*1$ and $*2$ to each truthfully reveal its politically-optimal-reaction-curve tariffs in its initial offers, and (ii) foreign country $*3$ will be unaffected by the bilaterals (and there can be no free rider problems as a result).

Next consider the following alternative bargain. In its bilateral with foreign country $*1$,

the domestic country agrees to lower its tariff from $\hat{\tau}_x^1$ to $\bar{\tau}_x^1$ in exchange for a reduction in the tariff of foreign country $*1$ from $\hat{\tau}_y^{*1}$ to $\bar{\tau}_y^{*1}$. Notice that the tariff changes agreed to in this bilateral would by themselves result in a rise in the level of $\widetilde{p}^w$: they are *not* bilaterally reciprocal. And in its bilateral with foreign country $*2$, the domestic country offers no further tariff cut but foreign country $*2$ agrees to lower its tariff from $\hat{\tau}_y^{*2}$ to $\bar{\tau}_y^{*2}$. Notice that the tariff changes agreed to in this bilateral would by themselves result in a drop in the level of $\widetilde{p}^w$: they are *not* bilaterally reciprocal either. Nevertheless, taken together these two bilaterals satisfy *multilateral reciprocity*, as in combination they do leave the world price unaltered; and with the world price fixed under multilateral reciprocity, it follows that if together domestic country 1's bilaterals must abide by MFN and satisfy (multilateral) reciprocity, then (i) it is a dominant strategy for countries 1, $*1$ and $*2$ to each truthfully reveal its politically-optimal-reaction-curve tariffs in its initial offers, and (ii) foreign country $*3$ will be unaffected by the bilaterals (and there can be no free rider problems as a result).

Having described these basic results, each of the following subsections presents further development of the discussion in section 6.1 along a distinct dimension.

7.2. Multilateral versus Bilateral Reciprocity

In various GATT reports issued at the time of the early GATT rounds, it is emphasized that a key feature of GATT relative to earlier attempts to negotiate MFN tariff reductions (e.g., the U.S. Reciprocal Trade Agreements Act) is that the multilateral nature of GATT allowed 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 describing the results of the 1947 Geneva Round put it:

> 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. (GATT, 1949: *The Attack on Trade Barriers*, p. 10)

Was the relaxation of strict bilateral reciprocity afforded by the multilateral nature of the GATT bargaining forum a key to GATT's success? One way to assess this claim would be to attempt direct measures of the degree to which the GATT bargaining outcomes violated bilateral reciprocity but conformed with multilateral reciprocity. A difficulty with attempting a direct assessment of this kind is that it requires knowledge of detailed trade elasticities that would apply to the countries involved in the GATT negotiations during the period in which they were negotiating. Here we develop an alternative approach. 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 might expect to see reactions in the bilateral bargaining records of some countries when an unexpected event occurs in the bilateral negotiations of other countries (whereas according to the theory sketched out in 7.1 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 United Kingdom and its Commonwealth partners to reach agreement with the United States in the Torquay Round suggests that such reactions to unexpected 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. 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. (GATT, 1952: *GATT in Action*, p. 9)

This discussion suggests an indirect way to evaluate the importance of the relaxation of the need for strict bilateral reciprocity in contributing to the success of GATT tariff bargaining. If the collapse of the bilateral bargains between the United States on the one hand and the UK and each of its Commonwealth partners on the other triggered significant changes in the remaining bilaterals that the United States 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 which was facilitated by the GATT multilateral bargaining forum was indeed important to the success of the GATT approach.[23] On the other hand, if little or no change in the remaining bilaterals is observed in response to this collapse, this would suggest that bilateral reciprocity was in fact being achieved all along, and that the relaxation of the need for strict bilateral reciprocity facilitated by the GATT multilateral bargaining forum was not a central reason for GATT's success.

How might one infer whether the bargains changed in response to the U.S.-UK/Commonwealth collapse? One possibility is to follow an "event study"-like approach. In particular, we can ask whether the total number of HS6 product-country pairs with an existing tariff offer to the United States outstanding just prior to the date at which the news of the U.S.-UK collapse broke, summed across all U.S. bilaterals except the U.S.-UK, U.S.-Australia and U.S.-New Zealand bilaterals, is greater than the total number of HS6 product-country pairs with a final tariff offer to the United States at the end of the Round, again summed across all U.S. bilaterals (with the failures of the U.S.-UK, U.S.-Australia and U.S.-New Zealand bilaterals

[23] There would remain the theoretical question of why such a relaxation of the bilateral reciprocity constraint in favor of a multilateral reciprocity constraint would matter to the success of tariff bargaining, as the simple theory sketched out at the beginning of section 7.1 does not point to any reason why it should. But empirical evidence along these lines would at least point the way to an interesting, relevant and open theoretical question.

excluding these bilaterals automatically from this sum). If the first sum is greater than the second, then the implied decline in the willingness of U.S. bargaining partners to make offers in their bilaterals with the United States once it was known that the U.S.-UK bilateral had failed would be consistent with the views of the GATT Secretariat, that if "...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."[24]

To implement this first approach, there is the important issue of identifying when the news of the U.S.-UK breakdown occurred. This news was officially announced at the GATT Secretariat on March 31, 1951, but the *New York Times* (1951) 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 March 15, but we also experiment with a variety of alternative news dates between March 1 and March 30.

A second possibility is to adopt a regression approach. Here we focus on the behavior of offers by the United States to its non-UK/Commonwealth bargaining partners. Specifically, we define USOfferPost as an indicator variable that takes the value 1 if the HS6-country pair was added after 3/15/1951 and 0 otherwise. And we define USOfferUK as an indicator variable that takes the value 1 if the United States made the United Kingdom an offer on that HS6 product in its 11/17/1951 offer and 0 otherwise. Regressing USOfferPost on USOfferUK and a set of controls, we would expect to find a positive coefficient on USOfferUK if the failure of the U.S.-UK bilateral led the United States to extend its offers to countries directly on products where those countries had anticipated that they would gain access indirectly into the U.S. market through the U.S.-UK bilateral.

To shed light on the issue of whether the relaxation of strict bilateral reciprocity afforded by the multilateral nature of the GATT bargaining forum was a key to GATT's success, we begin by considering the first approach to this issue described above as embodied in the question: Did the willingness of U.S. bargaining partners to make offers in their bilaterals with the United States

[24] This measure ignores possible intensive margin adjustments, but as we have noted such adjustments do not seem to have played a significant role in the Torquay Round bargaining.

diminish once it was known that the U.S.-UK bilateral had failed? To answer this question, we fix 3/15/1951 as the date by which negotiators at Torquay had learned that the U.S.-UK bilateral would fail, and we calculate the total number of HS6 product-country pairs with an existing tariff offer to the United States outstanding on 3/15/1951, summed across all U.S. bilaterals except the U.S.-UK, U.S.-Australia and U.S.-New Zealand bilaterals. This number is 1,096. We then calculate the total number of HS6 product-country pairs with a final tariff offer to the United States at the end of the Round, again summed across all U.S. bilaterals (with the failures of the U.S.-UK, U.S.-Australia and U.S.-New Zealand bilaterals excluding these bilaterals automatically from this sum). This number is 1,175. Clearly, comparing these two numbers would not lead one to conclude that there had been a diminished willingness on the part of U.S. bargaining partners to make offers in their bilaterals with the United States after they had learned that the U.S.-UK bilateral would end in failure. Performing this same calculation with the "news" date fixed at either 3/1/1951 or 3/30/1951 yields similar results.

We next turn to our second approach as described above and embodied in the following question: Did the failure of the U.S.-UK bilateral lead the United States to extend its offers to countries directly on products where those countries had anticipated that they would gain access indirectly into the U.S. market through the U.S.-UK bilateral? Table 13 provides the regression evidence (OLS and Probit), with the news date fixed at 3/15/1951. As the estimates in the table indicate, the coefficient on USOfferUK is positive and significant in all specifications, as would be expected if the failure of the U.S.-UK bilateral led the United States to extend its offers to countries directly on products where those countries had anticipated that they would gain access indirectly into the U.S. market through the U.S.-UK bilateral. Using a news date of 3/1/1951 yields the same 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.

Overall, we interpret these results as providing some indirect evidence that news of the breakdown in the U.S.-UK bilateral did cause 3^{rd} countries to rebalance their bilaterals with the United States, 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 may have been important for the success of the GATT approach. But our results don't support the view expressed in the report by the GATT Secretariat quoted above, that this

rebalancing took the form of a general retrenchment of offers to the United States: rather, our results suggest that this rebalancing was achieved by reorienting U.S. offers directly to those 3^{rd} countries who would have stood to gain the most indirectly from a successful U.S.-UK bargain.

7.3. Bargaining "Stability" and the Principal Supplier Rule

As argued in section 7.1, under MFN and strict multilateral reciprocity, the free rider problem should not arise and bargaining externalities should not cause any problems for bargaining. But what, then, is the role of the principal supplier rule? Why would it matter to whom a country offered any particular tariff concession? As we have discussed in note 20, one natural possibility is that this rule helps to minimize free rider issues where it is not possible to achieve strict multilateral reciprocity. Here we investigate another possible role for the principal supplier rule that could apply even when MFN and strict multilateral reciprocity are achieved: in the presence of MFN and strict multilateral reciprocity, the principal supplier rule may contribute to the "stability" of the bargaining process, by helping to minimize the readjustments that would be required to maintain multilateral reciprocity in the event that a bilateral bargain fails unexpectedly.[25]

To investigate this possibility, and letting i denote a U.S. HS6 import product on which the United States had an offer outstanding to the United Kingdom just prior to the collapse of the U.S.-UK bilateral, we define $ADJUST_i^{\text{US UK}}$ as an indicator variable that takes the value 1 if the United States adds an offer of product i to at least one country subsequent to the collapse of the U.S.-UK bilateral and takes the value 0 otherwise. Then defining $SHARE_i^{\text{US UK}}$ as the share of U.S. imports of product i coming from all Torquay countries that is supplied by the United Kingdom, we estimate the following logit:

$$\Pr(ADJUST_i^{\text{US UK}} = 1) = \frac{1}{1 + e^{-(\alpha_0 + \alpha_1 SHARE_i^{\text{US UK}})}}.$$

If the principal supplier rule is helping to minimize the readjustments that would be required to maintain multilateral reciprocity in the event that a bilateral bargain fails unexpectedly, then we would expect to find $\alpha_1 < 0$: this would indicate that where the bilateral between the United States and the United Kingdom concerned a product i for which the UK was a more dominant (principal) supplier (a large value for $SHARE_i^{\text{US UK}}$), the probability of readjustment

[25] Notice that this idea is slightly different than the second possibility discussed in note 20.

subsequent to the collapse of the U.S.-UK bilateral of other bilaterals concerning that product would be small.

[Results TBA]

7.4. Truth-Revealing Initial Offers

Did countries truthfully reveal their (efficient-under-symmetry) politically-optimal-reaction-curve tariffs in their initial Torquay Round offers? In theory, under certain conditions – i.e., the dual constraints that a country's tariffs satisfy MFN and that the bargaining outcomes lead to changes in its trade volumes that satisfy strict multilateral reciprocity, which together have the effect of making the country's terms of trade independent of the trade volumes that are implied for the country by the negotiated tariff agreement – we have argued that doing so would have been a dominant strategy.[26] To provide some assessment of whether countries did in fact do this, we assume that they did and ask whether we can find evidence in the bargaining outcomes that is inconsistent with this assumption.

Specifically, we use the union of the U.S. *initial offers* in each of its Torquay bilaterals (denoted by $\tau_i^{US\ \text{Offer}}$ for product i) to identify the set of politically-optimal-reaction-curve tariffs for the United States in the Torquay Round: denoting the politically-optimal-reaction-curve tariffs for the United States by $\tau_i^{US\ \text{R}^{\text{PO}}}$, we therefore assume

$$\tau_i^{US\ \text{R}^{\text{PO}}} = \tau_i^{US\ \text{Offer}} \ \forall\ i. \qquad \text{(Assumption 1)}$$

And using the *final agreed outcomes* (final agreed U.S. tariffs, denoted by $\tau_i^{US\ \text{Agreed}}$) of the Torquay Round, which in the case of no agreement on product i amounts to the existing tariff at the start of the round, we then define the degree of *tariff bargaining failure* at the product level for the United States in the Torquay Round by

$$TorqFail_i^{US} \equiv \tau_i^{US\ \text{Agreed}} - \tau_i^{US\ \text{R}^{\text{PO}}} = \tau_i^{US\ \text{Agreed}} - \tau_i^{US\ \text{Offer}}. \qquad (7.1)$$

A strictly positive value for $TorqFail_i^{US}$ would indicate that the Torquay Round did not succeed in bringing the agreed U.S. tariff on product i all the way down to the U.S. politically-optimal-reaction curve tariff, while a value of zero would indicate that the agreement achieved this (efficient-under-symmetry) level for the tariff.

[26] Recall that we also assume throughout that self-enforcement constraints do not bind at the politically-optimal-reaction-curve tariffs.

As one country could satisfy the dual constraints that its tariffs abide by MFN and that the bargaining outcomes imply trade volume changes for it that satisfy strict multilateral reciprocity independently of whether these constraints are satisfied for other countries, and as our claim is that when these constraints are satisfied for a country it is a dominant strategy for the country to announce truthfully its politically optimal reaction curve tariffs in its initial offers, it follows that the validity of Assumption 1 can be assessed independently of whether an analogous assumption holds for U.S. bargaining partners at Torquay. To assess the consistency of Assumption 1 with the Torquay bargaining data, we ask whether the pattern of observed U.S. bargaining failures as implied in $TorqFail_i^{US}$ can be linked either to the failure of the United States to abide by MFN or to achieve multilateral reciprocity: if there is evidence of such a link, we would conclude that Assumption 1 can be rejected; if there is no evidence of such a link, and if instead the pattern of observed U.S. bargaining failures as implied in $TorqFail_i^{US}$ can be adequately accounted for with factors that would not themselves violate Assumption 1, then we would conclude that the Torquay bargaining data seems consistent with Assumption 1.

The United States abided by MFN during the Torquay period, but it is possible that the United States did not achieve (and did not expect to achieve) strict multilateral reciprocity in the Torquay Round. Rather than attempting to measure deviations from strict multilateral reciprocity directly, we look for indirect evidence of such deviations by asking whether U.S. bargaining failures in the Torquay Round are related to the presence of bargaining externalities (which could themselves have arisen due to the failure of the United States to achieve strict multilateral reciprocity in the round). We next elaborate on this idea.

(i) Bargaining Externalities: Under MFN and strict multilateral reciprocity, the free rider problem should not arise and bargaining externalities should not cause any problems for bargaining. But under MFN, if multilateral reciprocity is not achieved and if other techniques (e.g., the principal supplier rule) are not effective to deal with the resulting potential for bargaining spillovers, there will be $3^{rd}-$party externalities, and free rider problems could arise.[27] So if we were to find a significant relationship between U.S. Torquay bargaining failures and the concentration of Torquay-country principal suppliers into the U.S. market, then this would be evidence against the assumption that the United States achieved multilateral reciprocity in the Torquay Round, and presumably then as long as this was anticipated by the United States, evi-

[27] Bargaining externalities might also arise if the export supply adjustments embedded in the definition of reciprocity are realized gradually over time. $3^{rd}-$party externalities might then be experienced in the short run.

dence against Assumption 1 as well.[28] To check this we construct the following variable: for each U.S. product i we construct the Herfindahl index among all Torquay-country suppliers of that product into the U.S. market. If the United States is able to achieve multilateral reciprocity, then we would expect that this variable should have no predictive power over U.S. bargaining success at Torquay. Constructing this variable requires only the U.S. bilateral import data from the Torquay Round. Denote this variable by EXT_i^{US}.

To accurately assess whether bargaining externalities associated with a failure of the United States to achieve multilateral reciprocity might account for U.S. bargaining failures in the Torquay Round, we need also to control for those factors that could help explain the pattern of observed deviations from $TorqFail_i^{US} = 0$ but would not themselves imply a violation of Assumption 1, i.e., with factors that are consistent with the United States satisfying the dual constraints of MFN and multilateral reciprocity. To this end, we next argue that, under Assumption 1, non-zero values for $TorqFail_i^{US}$ could be attributable to the following possible explanations which would still be consistent with Assumption 1:

(ii) UK PTAs: U.S. bargaining failures could be associated with the existence of tariff preferences in the United Kingdom. This reflects the well-known possibility of a "stumbling block" relationship between PTAs and multilateral liberalization, but the particular mechanism here is novel and potentially interesting: for the United Kingdom and its Commonwealth partners, such preferences would violate MFN and lead thereby to the possibility of strategic behavior in the U.S./UK and U.S/UK-Commonwealth bilateral bargains; and this possibility of strategic behavior in turn potentially could result in bargaining failures for the United States in products where the UK or UK-Commonwealth countries are a principal supplier into the U.S. market. Notice that as long as the United States does not itself have preferences and hence abides by MFN (and expects multilateral reciprocity), Assumption 1 would still hold; thus, the U.S. would continue to have a dominant strategy in which it offers its politically-optimal-reaction-curve tariffs. The UK and its Commonwealth partners, however, might have

[28] See Ludema and Mayda (2013) for related ideas. Note also that if Assumption 1 does not hold then there is no theoretical reason to believe that the initial offers bear any particular relationship to the politically optimal reaction curve tariffs, and so no reason to think that $TorqFail_i^{US}$ provides a meaningful measure of US bargaining success. It is for this reason that we have avoided making statements about the expected sign of any relationship between $TorqFail_i^{US}$ and the concentration of Torquay-country principal suppliers into the U.S. market under the alternative hypothesis that the U.S. does not achieve strict multilateral reciprocity.

additional strategic considerations when making their tariff offers, since their tariffs may generate $3^{rd}-$party externalities due to the PTAs in which they participate. As a consequence, their tariff offers may differ from their politically-optimal-reaction-curve tariffs. This discussion points to a novel and potentially interesting implication: PTAs may act as stumbling blocks to GATT/WTO multilateral liberalization because they introduce strategic considerations into the GATT bargaining setting that are not there for countries that abide by MFN. We check for this possibility by asking if a dummy variable – whose i^{th} value is 1 when either the UK or a UK-Commonwealth country is a principal supplier into the U.S. market of product i and offers a preferential tariff rate on this product to its Commonwealth partners and 0 otherwise – can help explain (with a positive and significant sign) the pattern of non-zero values of $TorqFail_i^{US}$. Denote this dummy variable by PTA_i^{UK}.

(iii) Barter: U.S. bargaining failures could be associated with the lack of a double coincidence of wants that barter requires. To check for this in a crude way, we construct a variable whose i^{th} value is the inverse of the number of HS6 products on which the United States makes a request of the principal supplying country of product i into the U.S. market. For a product i where this measure is high, this would indicate the likelihood of a lack of the double coincidence of wants needed for the United States to successfully complete a bargain over its tariff on product i. Hence, we would expect the variable to predict (with a positive and significant sign) the pattern of non-zero values of $TorqFail_i^{US}$. Denote this variable by variable $LACK_i^{US}$.

(iv) Preserving Bargaining Power for Future Rounds: US bargaining failures could be associated with the degree to which countries absent from the Torquay Round constitute principal suppliers of product i, measured by the share of U.S. imports of product i that are supplied by countries not present at the Torquay Round: this would be the manifestation of the so-called "split-concessions" bargaining technique that Beckett (1941) claims the United States made use of in the context of the U.S. Reciprocal Trade Agreements Act. Denote this variable by $ABSENT_i^{US}$. If this variable is positively and significantly related to $TorqFail_i^{US}$, then this suggests that the U.S. was preserving bargaining power for future rounds in products where the principal supplier was not present at Torquay.

(v) Differentiated Goods: Recently Ossa (forthcoming) has suggested that the existence of differentiated goods can interfere with the ability of MFN and reciprocity to neutralize

$3^{rd}-$party externalities. This suggests that U.S. bargaining failures (stemming from bargaining externalities) could be associated with the presence of differentiated goods imported into the United States, even if the United States abides by MFN and achieves strict multilateral reciprocity in its Torquay bargains. Notice, though, that regardless of whether products are homogeneous or differentiated, as long as the United States satisfies the dual constraints of MFN and strict multilateral reciprocity, the U.S. terms of trade will remain independent of the trade volumes that are implied for it by the negotiated tariff agreement, and hence Assumption 1 should still remain valid. To account for the possibility that differentiated products could nevertheless create $3^{rd}-$party externalities in this environment and lead to U.S. bargaining failures, we use standard measures of product differentiation (e.g., the Rauch index, though we acknowledge that whether it is reasonable to apply that index to trade data from the 1940's and 1950's is not obvious) to construct a variable that indicates the degree of product differentiation for each U.S. import product i. Denote this variable by $DIFF_i^{US}$. A finding that $DIFF_i^{US}$ is significantly and positively related to $TorqFail_i^{US}$ would be evidence of the possibility suggested by Ossa.[29]

Collecting these points, we estimate the following descriptive regression:

$$TorqFail_i^{US} = \alpha_0 + \alpha_1 EXT_i^{US} + \alpha_2 PTA_i^{UK} + \alpha_3 LACK_i^{US} + \alpha_4 ABSENT_i^{US} + \alpha_5 DIFF_i^{US} + \epsilon_i. \tag{7.2}$$

According to the discussion above, when focusing on the U.S. bargaining failures at Torquay and under the null hypothesis that Assumption 1 is correct, we expect to find a "stumbling block" effect associated with the existence of UK tariff preferences ($\alpha_2 \geq 0$), a "barter" effect where the double coincidence of wants is lacking ($\alpha_3 \geq 0$), a "split-concessions" effect where principal suppliers into the U.S. market are absent from the Torquay Round ($\alpha_4 \geq 0$), a possible "spillover" effect associated with differentiated products ($\alpha_5 \geq 0$), and finally the absence of a significant relationship between U.S. bargaining failures and the concentration of Torquay-country principal suppliers into the U.S. market ($\alpha_1 = 0$). A failure to find these features would lead to the conclusion that Assumption 1 is violated by the Torquay bargaining data, and that private information possessed by the United States is therefore likely an important factor in

[29] Notice that with all of the Torquay initial offers from all countries (and all the bilateral trade data too, perhaps), we could also assess the degree of overall asymmetry in the round and thereby assess whether rationing might be explaining some of the bargaining failure. But with only the U.S. bilaterals, this assessment is not possible. Hence, we leave an exploration of this possible explanation of bargaining failures for future work.

explaining the U.S. bargaining outcomes in the Torquay Round. On the other hand, if we find evidence of these features, then we can conclude that Assumption 1 is not inconsistent with the Torquay bargaining data, and that the U.S. bargaining outcomes in the Torquay Round can therefore be understood reasonably well without appealing to private information possessed by the United States.[30]

Notice also that the above would indicate that bargaining externalities are important if either $\alpha_1 \neq 0$ or $\alpha_5 > 0$, suggesting that the consideration of models of bilateral bargaining with externalities, informed by other institutional features of the GATT bargaining setting, would be required to adequately account for features of the Torquay bargaining data. But an interesting distinction is that $\alpha_1 \neq 0$ would also imply that Assumption 1 is inconsistent with the bargaining data and hence asymmetric information is likely to be an important ingredient in accounting for the Torquay bargaining data as well, whereas if $\alpha_1 = 0$ but $\alpha_5 > 0$ then this would suggest that Assumption 1 remains valid even as bargaining externalities must be considered, indicating that private information (at least on the part of the United States) would not be a relevant consideration.

[Results TBA]

8. Conclusion

[TBA]

[30] If we were to find that all the estimated slope coefficients in (7.2) were zero, a possible interpretation would be that Assumption 1 is violated in the Torquay bargaining data and that $TorqFail_i^{US}$ is just random noise. For this reason, a conclusion that the US bargaining outcomes in the Torquay Round can be understood reasonably well without appealing to private information possessed by the United States would be warranted only if $\alpha_1 = 0$, α_2 through α_5 are non-negative and at least one of the coefficients α_2 through α_5 is strictly positive.

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9. Tables

			By Negotiating Partner			
	Unique	Total	Mean	SD	Min	Max
HS6 requests	1584	2630	109.583	242.933	0	1048
HS6 request modifications	61	61	2.542	10.871	0	53
HS6 offers	1353	1944	81.000	142.305	0	555
HS6 offer modifications	173	178	7.417	15.419	0	58
HS6 offers on requests	891	711	29.625	56.954	0	211
Fraction HS6 offers on requests	0.659		0.277	0.271	0	1
HS6 offers without request	462	1233	51.375	90.358	0	344
Fraction HS6 offers without request	0.341		0.556	0.349	0	1
HS6 final concessions	983	1189	49.542	95.363	0	359
HS6 final concessions with requests	659	444	18.500	38.458	0	122
Fraction final concession with request	0.670		0.211	0.247	0	1
HS6 final concession without request	324	745	31.042	62.571	0	245
Fraction final concessions without request	0.330		0.414	0.374	0	1

Table 9.1: Sales by US. "Request" corresponds to a negotiating partner seeking a US tariff reduction. "Offer" corresponds to the US offering a US tariff reduction. "Final concession" corresponds to an agreed upon US tariff reduction. Unique refers to the number of unique HS6 codes. Total refers to the number of HS6 code-country pairs.

			By Negotiating Partner			
	Unique	Total	Mean	SD	Min	Max
HS6 requests	1274	2361	98.375	88.784	0	349
HS6 request modifications	192	227	9.458	18.354	0	80
HS6 offers	1090	1815	75.625	86.651	0	326
HS6 offer modifications	132	133	5.542	14.503	0	53
HS6 offers on requests	970	1499	62.458	77.025	0	315
Fraction HS6 offers on requests	0.890		0.626	0.417	0	1
HS6 offers without request	120	316	13.167	24.655	0	101
Fraction HS6 offers without request	0.110		0.207	0.318	0	1
HS6 final concessions	857	1175	48.958	82.098	0	326
HS6 final concessions with requests	763	925	38.542	72.523	0	315
Fraction final concession with request	0.890		0.488	0.428	0	1
HS6 final concession without request	94	250	10.417	22.419	0	89
Fraction final concessions without request	0.110		0.137	0.213	0	1

Table 9.2: Purchases by US. "Request" corresponds to a US seeking tariff reduction from negotiating partner. "Offer" corresponds to negotiating partner offering a tariff reduction to US. "Final concession" corresponds to an agreed upon tariff reduction from negotiating partner. Unique refers to the number of unique HS6 codes. Total refers to the number of HS6 code-country pairs.

HS6 received request and made request	510
HS6 made offer and made request	462
HS6 received offer and received request	405
HS6 received request or made offer and made request or received offer (same country)	160
HS6 made and received a final concession (same country)	41
Fraction for which US made and received a final concession (same country)	0.256

Table 9.3: Sales and Purchases by US. This table represents goods for which the US was both offering tariff reductions, and seeking tariff reductions, sometimes with the same negotiating partner.

		Ad Valorem	Specific	All
Initial Request	N	779	473	1252
over	Mean	0.589	0.617	0.599
Existing Tariff	SD	0.150	0.186	0.165
	Min	0.000	0.000	0.000
	Max	1.000	1.000	1.000
Initial Offer	N	262	152	414
over	Mean	1.214	1.288	1.241
Initial Request	SD	0.491	0.583	0.527
	Min	0.033	0.000	0.000
	Max	4.800	4.571	4.800
Finalized Concession	N	246	134	380
over	Mean	1.207	1.266	1.228
Initial Request	SD	0.493	0.605	0.535
	Min	0.033	0.000	0.000
	Max	4.800	4.571	4.800
Finalized Concession	N	916	476	1392
over	Mean	1.001	1.021	1.008
Initial Offer	SD	0.063	0.423	0.253
	Min	0.020	0.500	0.020
	Max	1.714	10.000	10.000
Finalized Concession	N	917	479	1396
over	Mean	0.667	0.678	0.671
Existing Tariff	SD	0.178	0.194	0.184
	Min	0.008	0.333	0.008
	Max	1	1	1

Table 9.4: Sales by US. This table conveys requests, offers, concessions and existing tariffs in proportion to each other. Some goods appear in both the ad valorem and specific columns.

		Ad Valorem	Specific	All
Initial Request	N	1323	1024	2347
over	Mean	0.634	0.825	0.717
Existing Tariff	SD	0.211	0.236	0.241
	Min	0.000	0.000	0.000
	Max	1.000	1.000	1.000
Initial Offer	N	373	603	976
over	Mean	1.406	1.184	1.269
Initial Request	SD	0.523	0.542	0.546
	Min	0.556	0.000	0.000
	Max	5.000	7.444	7.444
Finalized Concession	N	303	569	872
over	Mean	1.388	1.152	1.234
Initial Request	SD	0.488	0.420	0.458
	Min	0.556	0.000	0.000
	Max	3.571	6.400	6.400
Finalized Concession	N	491	660	1151
over	Mean	1.035	0.982	1.005
Initial Offer	SD	0.280	0.120	0.206
	Min	0.000	0.000	0.000
	Max	2.933	1.412	2.933
Finalized Concession	N	469	683	1152
over	Mean	0.857	0.885	0.874
Existing Tariff	SD	0.171	0.213	0.197
	Min	0.000	0.000	0.000
	Max	1	1	1

Table 9.5: Purchases by US. This table conveys requests, offers, concessions and existing tariffs in proportion to each other. Some goods appear in both the ad valorem and specific columns.

	Mean	SD	Min	Max
Unconditional				
N offers per good-country	1.644	0.562	1	3
N offers per country	2.450	1.317	1	5
N requests per good-country	1.005	0.067	1	2
N requests per country	1.150	0.489	1	3
Conditional on final agreement				
N offers per good-country	1.983	0.371	1	3
N offers per country	2.933	1.163	2	5
N requests per good-country	1.014	0.116	1	2
N requests per country	1.231	0.599	1	3

Table 9.6: Sales by US: This table presents statistics on the amount of back and forth on goods and with negotiating partners over US concessions.

	Mean	SD	Min	Max
Unconditional				
N offers per good-country	1.515	0.542	1	5
N offers per country	2.050	1.050	1	6
N requests per good-country	1.005	0.071	1	2
N requests per country	1.455	0.510	1	2
Conditional on final agreement				
N offers per good-country	1.766	0.498	1	5
N offers per country	2.333	1.047	2	6
N requests per good-country	1.005	0.073	1	2
N requests per country	1.600	0.507	1	2

Table 9.7: Purchases by US: This table presents statistics on the amount of back and forth on goods and with negotiating partners over concessions from the negotiating partner.

N countries	N products	Fraction products
	Any request	
1	879	0.555
2	450	0.284
3	182	0.115
4	61	0.039
5	11	0.007
6	1	0.001
	Any offer	
1	917	0.678
2	321	0.237
3	82	0.061
4	27	0.020
5	5	0.004
6	1	0.001
	Final Concession	
1	806	0.818
2	157	0.159
3	21	0.019
4	4	0.004

Table 9.8: Sales by US. 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.

N countries	N products	Fraction products
Any request		
1	773	0.607
2	261	0.205
3	93	0.073
4	77	0.060
5	24	0.019
6	13	0.010
7	12	0.009
8	2	0.002
9	13	0.010
10	2	0.002
11	4	0.003
Any offer		
1	682	0.626
2	226	0.207
3	111	0.102
4	32	0.029
5	19	0.017
6	15	0.014
7	5	0.005
Final Concession		
1	665	0.776
2	104	0.121
3	58	0.068
4	23	0.027
5	6	0.007
6	1	0.001

Table 9.9: Purchases by US. 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

	Mean	SD	Min	Max
HS1 with request	4.750	3.615	0	10
HS1 with offer	5.583	3.611	0	10
HS1 with final concession	3.917	3.694	0	10
Products per HS1 with request	23.070	35.882	1	180
Products per HS1 with offer	14.507	22.651	1	107
Products per HS1 with final concession	8.365	11.055	1	46

Table 9.10: Sales by US. This table conveys the diversity of products under negotiation in terms of broad HS1 categories.

	Mean	SD	Min	Max
HS1 with request	6.875	2.724	0	10
HS1 with offer	5.583	3.550	0	10
HS1 with final concession	5.375	3.512	0	10
Products per HS1 with request	12.089	20.279	1	178
Products per HS1 with offer	6.077	7.520	1	42
Products per HS1 with final concession	12.912	22.266	1	178

Table 9.11: Purchases by US. This table conveys the diversity of products under negotiation in terms of broad HS1 categories.

	N	Mean	SD	Min	Max
Sales by US: Earliest Request over Final Request (AdVal.)	494	1.015	0.202	0.338	4.200
Sales by US: Earliest Request over Final Request (Sp.)	313	1.041	0.522	0.110	9.167
Sales by US: Earliest Request over Final Request (All)	807	1.025	0.361	0.110	9.167
Sales by US: Earliest Offer over Final Offer (AdVal.)	841	1.014	0.343	0.146	9.333
Sales by US: Earliest Offer over Final Offer (Sp.)	415	1.006	0.191	0	2.000
Sales by US: Earliest Offer over Final Offer (All)	1256	1.012	0.301	0	9.333
Purchases by US: Earliest Request over Final Request (AdVal.)	303	1.192	0.740	0	5.500
Purchases by US: Earliest Request over Final Request (Sp.)	156	1.232	1.235	0	9.066
Purchases by US: Earliest Request over Final Request (All)	459	1.206	0.936	0	9.066
Purchases by US: Earliest Offer over Final Offer (AdVal.)	250	1.051	0.350	0	3
Purchases by US: Earliest Offer over Final Offer (Sp.)	347	1.039	0.537	0	9.066
Purchases by US: Earliest Offer over Final Offer (All)	597	1.044	0.467	0	9.066

Table 9.12: Ratio of final requests and offers to earliest requests and offers. "AdVal." denotes Ad Valorem. "Sp." denotes Specific.

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) PROBIT	(5) PROBIT	(6) PROBIT
US Offer to UK	0.0552**	0.0585**	0.0678**	0.319*	0.504***	0.608***
	(0.0246)	(0.0213)	(0.0278)	(0.173)	(0.128)	(0.167)
Observations	1,389	1,389	1,389	1,389	1,233	1,233
R-squared	0.008	0.397	0.407			
Country FE	No	Yes	Yes	No	Yes	Yes
HS1 FE	No	No	Yes	No	No	Yes
SE's clustered by negotiating partner						

Table 9.13: Regression of whether an HS6 product - country pairing offered by the US was added after 3/15/1951 (after the breakdown of US and UK bilateral negotiation) on whether the product in question was offered by the US to the UK. A positive coefficient implies that a product is more likely to be offered by the US following the US-UK bilateral breakdown if the US was offering a concession on this product to the UK before the negotiation failure.