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Source: *World Politics*, Vol. 57, No. 4 (Jul., 2005), pp. 453-478

Published by: Cambridge University Press

Stable URL: <http://www.jstor.org/stable/40060114>

Accessed: 01-03-2018 03:16 UTC

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AN EXCLUSIVE COUNTRY CLUB

The Effects of the GATT on Trade, 1950–94

By JOANNE GOWA and SOO YEON KIM*

PERHAPS the most widely accepted explanation of international regimes is their ability to resolve market-failure problems. In this view, regimes supply information, assign liability for actions, and reduce the transaction costs that impede decentralized cooperation between states.¹ The role of regimes in correcting market failures and the fact that accession to them is voluntary imply that they enhance the welfare of their member states.

That a regime makes its member states better off does not mean, of course, that its gains are distributed uniformly across them. As Stephen D. Krasner points out, the prospective members of any regime must agree on which of the infinitely large set of Pareto-efficient equilibria it will enforce.² As this process admits the play of power politics, its outcome can reflect the preferences of only a small set of states. Thus, the distribution of the gains that a regime produces can be biased toward a small group of its most powerful members.³

Despite the significance the literature assigns to the benefits that a regime delivers, efforts to measure them have been relatively rare. In this article we consider the impact of the General Agreement on Tariffs and Trade (GATT) on the trade of its members. We also assess the impact of the GATT on world welfare more broadly, examining whether it

*For comments on earlier versions of this article, we are grateful to Anne Case, Benjamin J. Cohen, Christina L. Davis, Donald P. Green, Gene Grossman, Robert O. Keohane, Edward D. Mansfield, Helen Milner, Christina Paxson, Anne E. Sartori, three anonymous referees, and participants in workshops at Princeton University, Stanford University, the University of California, Santa Barbara, the University of Maryland, and the University of Virginia.

¹Robert O. Keohane, "The Demand for International Regimes," *International Organization* 36 (Spring 1982).

²Stephen D. Krasner, "Global Communications and National Power: Life on the Pareto Frontier," *World Politics* 43 (April 1991). See also James Fearon, "Bargaining, Enforcement, and International Cooperation," *International Organization* 52 (Spring 1998).

³Welfare maximization is defined in standard trade theory as the efficiency gains that accrue when patterns of comparative advantage drive trade. Defining benefits here as increased trade is consistent with observed behavior, as GATT members sought to increase their exports. See Martin Wolf, "Differential and More Favorable Treatment of Developing Countries and the International Trading System," *World Bank Economic Review* 1 (May 1987).

replaced the system of interwar trade blocs not only *de jure* but also *de facto*. No previous study has addressed this issue, despite its importance for regime theory in general and for the trade regime in particular.

Using data from the interwar and postwar periods, we find that the GATT had a large, positive, and significant impact on trade between only five of its member states: Britain, Canada, France, Germany, and the United States. This finding differs markedly from the conclusions of recent path-breaking studies of the GATT/WTO regime.⁴ We also show that the postwar system coexisted with rather than supplanted several interwar blocs: the Commonwealth, Reichsmark, gold, and exchange-control blocs continued to exert positive and significant effects on post-1945 trade. We attribute these outcomes to the protocol that governed tariff negotiations under the auspices of the GATT.

Immediately below we explain the bargaining protocol that privileged trade expansion between the members of a remarkably small set of states and that helped the interwar blocs to survive. We then turn to the data. We first estimate several baseline models to ensure that our findings are not the result of the changes we made to the data used by existing studies. Next we test our hypotheses about the impact of the GATT. We conclude with a brief discussion of the implications of our analysis for the postwar trade regime.

THE RULES OF THE GAME

Although it is clear that states create an international institution to facilitate cooperation, it is also clear that some of them will try to ensure that its decision-making structure conforms to the prevailing distribution of power. This is obvious in the case of the United Nations, for example, where only the five permanent members of the Security Council can veto decisions. The same is true of the International Monetary Fund (IMF): only the United States secured a unilateral veto on the board of governors, and only the five states with the largest quotas gained permanent representation on the executive board.⁵

⁴ Andrew K. Rose, "Do We Really Know That the WTO Increases Trade?" *American Economic Review* 94 (March 2004); Arvind Subramanian and Shang-Jin Wei, "The WTO Promotes Trade Strongly but Unevenly," NBER Working Paper 10024 (2003); and Michael Tomz, Judith Goldstein, and Douglas Rivers, "Membership Has Its Privileges: The Impact of GATT on International Trade" (Manuscript, Stanford University, Stanford, Calif., 2004a). See also idem, "How Do Institutions Affect International Relations? Standing, Embeddedness, and the GATT/WTO" (Manuscript, Stanford University, Stanford, Calif., 2004b).

⁵ Susan Strange, "International Monetary Relations," in Andrew Shonfield, ed., *International Economic Relations of the Western World, 1959–1971*, vol. 2, *International Monetary Relations* (London: Oxford University Press, 1976).

Whether the same process was at work in the case of the GATT, however, is less clear. The GATT was something of an accidental institution, a result of congressional antipathy to its intended umbrella organization, the International Trade Organization (ITO).⁶ Despite the crucial role that the GATT assumed in the reconstruction of world trade, it remained “relatively innocent of institutional provisions.”⁷ Indeed, it never acquired the organizational capacity that would have allowed it to resolve the market-failure problem that is often cited as its *raison d’être*: the need to monitor whether states comply with the agreements they sign.

Instead, the trade regime operated largely as a bargaining forum. Understanding the protocol that governed the tariff bargains its members struck is therefore crucial to understanding the distribution of the regime’s benefits. Under the GATT protocol, tariff bargaining adhered to the principal-supplier rule. Thus, trade barriers were reduced on the basis of concessions on particular goods exchanged between their principal suppliers—that is, the nations that were the main source of these goods to each other’s markets. As such, it privileged trade expansion among the major trading nations.

The small subset of signatories privileged by the GATT’s bargaining protocol included Britain, Canada, France, Germany, and the United States. This group included the largest “natural” trading partners of the two states that dominated the creation of the GATT—that is, the principal trading partners of Britain and the United States in the period before the Great Depression, the Smoot-Hawley tariff, and the interwar trade blocs distorted international commerce.⁸ It also included Canada’s top four trading partners and the three largest trading partners of France and Germany.

More surprising than the country composition of the privileged group is the omission from it of two states that might seem to have been equally plausible candidates for membership: Japan, the second largest trading partner of the United States before 1929, and Italy. Their export profiles help to explain their exclusion. When Japan acceded to the

⁶ Negotiations to establish the ITO, intended to govern trade, began in 1946. The GATT was an interim agreement concluded in 1947 to guide the trade round then under way. The Truman administration chose not to resubmit the ITO charter to Congress for ratification in 1950. Thus, the GATT remained in effect until the WTO replaced it in 1995. See Kyle Bagwell and Robert W. Staiger, *The Economics of the World Trading System* (Cambridge: MIT Press, 2002), 46; and Susan Ariel Aaronson, *Trade and the American Dream: A Social History of Postwar Trade Policy* (Lexington: University Press of Kentucky, 1996).

⁷ Kenneth M. Dam, *The GATT: Law and International Economic Organization* (Chicago: University of Chicago Press, 1970), 336.

⁸ We identified the rankings of trading partners we report here using 1928 data, described below.

GATT in 1955, more than 40 percent of the membership denied it MFN treatment in order to protect their markets against a flood of textiles and other labor-intensive products in which Japan held a comparative advantage.⁹ Italy's exports were also heavily weighted toward textiles, clothing, leather goods, and shoes.¹⁰ In addition, almost 25 percent of Italy's exports in 1949 were agricultural goods (relative, for example, to 10 percent of British and German exports).¹¹ Thus, both countries specialized in precisely those products that privileged group members succeeded in exempting from GATT rules.

Regime theory suggests that the adoption of the principal-supplier rule was a consequence of the distribution of power among the states that were critical to the creation of the GATT. While certainly consistent with the balance of power that prevailed at the end of World War II, the evidence suggests that U.S. domestic politics played a crucial role. The rule was the product of a Congress wary of import competition and an executive intent on creating solid economic foundations for the postwar peace. The distribution of power among states played a secondary role, ensuring that U.S. preferences would be embedded in the regime.

The principal-supplier rule originated in the divergent trade policy goals that characterized the U.S. government as it began planning for postwar reconstruction. Officials of the Roosevelt administration sought to destroy the interwar trade blocs and promote European and transatlantic trade. This would help to stabilize Europe and contribute to the creation of a Western bloc strong enough to deter Soviet expansion.¹² Congress, however, had less ambitious goals, resembling those it had spelled out in the 1934 Reciprocal Trade Agreements Act (RTAA). While the RTAA authorized the president to negotiate trade agreements, it also instructed him to maximize market access abroad without jeopardizing domestic industry. It thus directed him to lower

⁹ Richard Pomfret, *Unequal Trade: The Economics of Discriminatory Trade Policy* (New York: Basil Blackwell, 1988), 53; Diane Tussie, *The Less Developed Countries and the World Trading System: A Challenge to the GATT* (London: Frances Pinter, 1987), 15. Even after the Article XXXV exemption was lifted, member countries "sought to isolate" Japan, leaving it "at the periphery" of the GATT even as late as the Tokyo Round; Michael Hart, *Fifty Years of Canadian Tradecraft: Canada at the GATT, 1947-1997* (Ottawa: Centre for Trade Policy and Law, 1998), 126. Patterson agrees, noting that the MFN obligations nations assumed with respect to Japan "were qualified and the principle of 'orderly marketing' was endorsed"; Gardner Patterson, *Discrimination in International Trade, the Policy Issues: 1945-1965* (Princeton: Princeton University Press, 1965), 295.

¹⁰ Vera Zamagni, *The Economic History of Italy, 1860-1990* (Oxford: Clarendon Press, 1993), 31, 368.

¹¹ Alan S. Milward, *The Reconstruction of Western Europe, 1945-51*, 2nd ed. (Berkeley: University of California Press, 2000), 441.

¹² Richard Gardner, *Sterling-Dollar Diplomacy: Anglo-American Collaboration in the Reconstruction of Multilateral Trade* (Oxford: Clarendon Press, 1956), 8.

tariffs only as necessary to promote exports and only in accord with the "needs of various branches of American production."¹³ It also demanded "reasonable public notice" of impending trade talks, prompting the administration to identify both prospective treaty partners and the products on which it intended to offer and request concessions.¹⁴

The RTAA also included a most-favored nation (MFN) clause, which required the signatories to a trade agreement to extend to each other any concession either might subsequently offer to a third country.¹⁵ To respect this clause and expand exports while protecting domestic industry, administration officials developed "the so-called chief-source, or 'Principal Supplier,' rule."¹⁶ Harry C. Hawkins, then head of the Trade Agreements Division, suggested that the United States "grant concessions on particular products to the country that . . . supplied the greatest proportion of our imports" of those products. This would enable the administration to defend itself against complaints that "other countries were getting something for nothing."¹⁷

Thus, the United States would offer to cut a tariff on a particular good only if the country to which it was making the offer was the principal supplier of that product to the U.S. market.¹⁸ Canada, for example, supplied 96 percent of the agricultural goods and 99 percent of the fish and lumber products on which the United States cut tariffs in the 1935 U.S.-Canadian trade accord.¹⁹ In negotiations with Argentina

¹³The source of the quotations in this paragraph is Chap. 474 U.S. code, Sec. 354, June 12, 1934, 945.

¹⁴Judith L. Goldstein, "Creating the GATT Rules: Policy, Institutions, and American Policy," in John Gerard Ruggie, ed., *Multilateralism Matters: The Theory and Praxis of Institutional Form* (New York: Columbia University Press, 1993). The Interdepartmental Committee on Foreign Trade Agreements and the Committee on Reciprocity Information were "responsible for identifying likely negotiating partners, designating concessions to be offered and demanded during negotiations, and supervising the negotiations as they were undertaken by the Department of State"; Michael A. Butler, *Cautious Visionary: Cordell Hull and Trade Reform, 1933-1937* (Kent, Ohio: Kent State University Press, 1998), 104. Thus, before negotiations began, "the public is given notice of the Government's intention to negotiate, is advised of the list of articles on which the grant of import concessions will be considered, and is invited to supply the Government with any information that might be useful to it in the conduct of the negotiations." U.S. Tariff Commission, *Operation of the Trade Agreements Program, July 1934 to April 1948*, pt. 2, *History of the Trade Agreements Program* (Washington, D.C.: Government Printing Office, 1948), 53.

¹⁵Kenneth A. Oye argues that this was in the self-interest of the United States, given the way interwar trade agreements were structured; Oye, *Economic Discrimination and Political Exchange: World Political Economy in the 1930s and 1980s* (Princeton: Princeton University Press, 1992), 95-96.

¹⁶Harry C. Hawkins, *Commercial Treaties and Agreement: Principles and Practice* (New York: Rinehart and Co., 1951), 81.

¹⁷John M. Leddy, staff member of the Trade Agreements Division, Department of State, Harry S. Truman Library, Oral History, <http://trumanlibrary.org/oralhist/leddyj>, 8-9. First quotation in Hawkins (fn. 16), 81.

¹⁸Hull believed that "if the United States signed [a treaty] with the low-cost producer, no industry would be hurt" by imports from other producers. Goldstein (fn. 14), 208.

¹⁹Butler (fn. 14), 135.

and Uruguay, the United States reduced tariffs on coarse and medium wools only. Had it cut the tariff on wool in general, it would have made an unreciprocated concession to Australia, which exported fine wools.²⁰ Tariff specialization—that is, the “separating or ‘ex-ing out’ of portions of a tariff item for negotiating purposes”—served the same end.²¹ When the United States cut its tariff on British goods in 1939, for example, it revived a “separate classification for bone china” to restrict the exploitation of the lower rate to “the English manufacturers who were practically the sole exporters of chinaware containing calcified bone.”²²

Although little opposition existed within Congress to using the principal-supplier rule after the war, the prospect evoked controversy within the administration. Members of the Executive Committee on Foreign Economic Policy, a group of high-level officials brought together to centralize trade-policy planning, preferred a linear approach.²³ That is, they preferred reducing tariffs equally across all product lines and trade partners to the item-by-item, country-by-country approach that the principal-supplier rule required. In their view, the traditional approach insulated the products of powerful industries and the goods that more than one nation exported, while conforming to the letter rather than to the spirit of the MFN principle.²⁴

It was precisely these attributes of the traditional approach that appealed to Congress, however.²⁵ And Roosevelt proved unwilling to force the issue because it could endanger the renewal of the RTAA.²⁶ Moreover, the principal-supplier rule was consistent with the administration’s goal of stabilizing Western Europe. Indeed, because it targeted trade between the United States and its major postwar allies, the rule would tighten ties between the very countries the U.S. government considered

²⁰ Hawkins (fn. 16), 92.

²¹ Pomfret (fn. 9), 6.

²² Percy Bidwell, *What the Tariff Means to American Industries* (New York: Harper and Brothers, 1956), 52–54.

²³ See Gardner (fn. 12), 150; Goldstein (fn. 14), 209.

²⁴ Bernard M. Hoekman and Michael M. Kostecky, *The Political Economy of the World Trading System: The WTO and Beyond*, 2nd ed. (Oxford: Oxford University Press, 2001), 128.

²⁵ Republican Party preferences were similar. Its 1944 platform asserted that because “the domestic market is America’s greatest market,” the tariff “which protects it against foreign competition should be modified only by reciprocal bilateral trade agreements”; Goldstein (fn. 14), 227n13.

²⁶ Leddy (fn. 17), 37. A heated debate exists about the RTAA and the trade preferences of presidents relative to Congress. See, e.g., Susanne Lohmann and Sharyn O’Halloran, “Divided Government and U.S. Trade Policy: Theory and Evidence,” *International Organization* 48 (Autumn 1994); Michael Hiscox, “The Magic Bullet? The RTAA, Institutional Reform, and Trade Liberalization,” *International Organization* 53 (Autumn 1999); Michael A. Bailey, Judith Goldstein, and Barry R. Weingast, “The Institutional Roots of American Trade Policy: Politics, Coalitions, and International Trade,” *World Politics* 49 (April 1997). We do not engage this debate here, since we are concerned about only this one instance of executive-congressional interaction.

key to deterring Soviet expansion. Thus, the executive branch acceded: the United States would continue to negotiate tariff cuts after 1945 as it had done between the wars.²⁷

THE RULES OF THE GAME: CONSEQUENCES

The decision to do so was not cost free, however. It would compromise the U.S. effort to destroy the interwar system. Britain had made clear that it would not abandon imperial preferences unless the United States agreed to a linear approach.²⁸ As John Leddy, a State Department official at the time, recalled, the British argued that "if the imperial preference system was to be junked the scope of the action on the tariff . . . had to be very, very substantial, and very deep, and across the board. No piecemeal operation like the previous bilateral trade agreements program would work."²⁹ Congressional constraints, however, mandated adherence to the principal-supplier rule. Thus, the United States would ultimately agree to grandfather the Commonwealth system, covering about one-third of world trade, into the GATT. Inevitably, this meant abandoning nondiscrimination more broadly: the GATT also grandfathered the colonial preferences of France, Belgium, and the Netherlands and preferential agreements between the United States and both the Philippines and Cuba.³⁰

The compromise on existing preference systems, as it turned out, was only one among several ways in which the principal-supplier rule impeded the destruction of the interwar system. Each of the trade blocs that had developed in the wake of the Great Depression linked one large state and several smaller countries. As such, dismantling the blocs would have required sustained attention to liberalizing trade between large and small countries. The principal-supplier approach ruled this out,

²⁷ Gardner (fn. 12); Thomas W. Zeiler, *Free Trade Free World: The Advent of GATT* (Chapel Hill: University of North Carolina Press, 1999), 45. An appealing by-product of the approach was that it gave exporters an interest in lowering tariffs abroad. See Bagwell and Staiger (fn. 6); Michael J. Gilligan, *Empowering Exporters: Reciprocity Delegation and Collective Action in American Trade Policy* (Ann Arbor: University of Michigan Press, 1997); and Douglas A. Irwin and Randall S. Kroszner, "Interests, Institutions, and Ideology in Securing Policy Change: The Republican Conversion to Trade Liberalization after Smoot-Hawley," *Journal of Law and Economics* 42 (October 1999).

²⁸ Pomfret (fn. 9), 30; John Gerard Ruggie, "International Regimes, Transactions and Change: Embedded Liberalism in the Postwar Economic Order," *International Organization* 36 (Spring 1982), 397. Preserving its bargaining power and maintaining the Commonwealth also, of course, motivated British efforts to preserve imperial preferences. Milward (fn. 11), 351.

²⁹ Leddy (fn. 17), 21.

³⁰ More generally, Article XXIV sanctioned preferential trading agreements (PTAs) as long as they were not "more restrictive" than they had been previously. For the GATT text, see <http://pacific.commerce.ubc.ca/trade/GATT>.

however. It also enhanced prospects for bloc survival because privileged-group members preferred to reduce tariffs on intraindustry trade rather than on cross-industry trade. Focusing on differentiated products biased trade expansion toward country pairs with relatively similar factor endowments. As such, it had little effect on trade between members of the same interwar bloc, which, because it tended to exploit differences rather than similarities in relative factor endowments, favored cross-industry trade and trade in primary products.

It is clear that the principal-supplier rule actually governed successive rounds of tariff bargaining. The 1947 Geneva round produced 123 agreements covering about 50,000 tariff items.³¹ They were struck “bilaterally on a product-by-product basis.”³² As such, they conformed to the Havana Charter of the ITO, which dictated that postwar trade negotiations would “be conducted on a selective product-by-product basis,” in order to take into account “the needs of individual countries and individual industries.”³³

The GATT subsequently sanctioned the continued use of “a selective product-by-product” approach, but it also endorsed any multilateral procedure the contracting parties could agree upon.³⁴ Although some member states preferred a multilateral approach, tariffs continued to be cut on a bilateral item-by-item basis.³⁵ Thus, for example, a linear approach formally governed tariff bargaining in both the Kennedy and the Tokyo Rounds.³⁶ Nonetheless, their participants continued to adhere to the principal-supplier rule on most products, including those on exceptions lists. Even the multilateral negotiations in some sectors at the Kennedy Round conformed more closely to a product-by-product process than to a linear tariff-cutting process.³⁷ When it came to the “non-sectoral, non-agricultural items that remained available for negotiation (that is, some 70 percent of dutiable industrial trade),” its participants “reverted to the traditional process of bilateral, item-by-item

³¹ T. N. Srinivasan, *Developing Countries and the Multilateral Trading System: From the GATT to the Uruguay Round and the Future* (Boulder, Colo.: Westview, 1998), 10.

³² U.S. Tariff Commission (fn. 14), 65; U.S. Tariff Commission, *Operation of the Trade Agreements Program, 9th Report, July 1955–June 1956* (Washington, D.C.: Government Printing Office, 1957), 65.

³³ Havana Charter, chap. 4, Art. 17.2(a). For the Havana Charter text, see www.globefield.com/havana.

³⁴ *Ibid.*, Article 28.2(a) (bis).

³⁵ In the 1950s, for example, several countries sought to impose maximum tariffs on broad product groups instead of continuing with reciprocal trade concessions. About the same time, a majority of GATT contracting parties, including Belgium, Denmark, France, Germany, and the Netherlands, proposed roughly 30 percent cuts on average tariffs in ten sectors. U.S. allegiance to the “product-by-product and country-by-country” approach, however, left the status quo intact. Karen Kock, *International Trade Policy and the GATT, 1947–1967* (Stockholm: Almqvist and Wiksell, 1969), 98; see also Dam (fn. 7), 67.

³⁶ The Trade Expansion Act of 1962 authorized the use of a linear approach. For discussion, see Dam (fn. 7), 67.

³⁷ *Ibid.*, 76. The sectors were chemicals, cotton textiles, iron and steel, aluminum, and pulp and paper.

tariff haggling.”³⁸ In the Uruguay Round, participants abandoned the use of a formula, reverting instead to the traditional approach.³⁹ Thus, successive GATT rounds consisted largely of a series of bilateral negotiations on specific products, biasing tariff reductions in favor of the goods traded between members of the privileged group.

The principal-supplier rule might seem irrelevant to the distributional effects of the GATT, given that Article 1 of the General Agreement required that any tariff cut apply to all members. Because group members shared relatively similar factor endowments, however, their concessions were unlikely to benefit the trade of countries with very different endowments. Yet precisely for this reason, it might seem to make little sense for members of the group to engage in bilateral rather than multilateral bargaining. As in the interwar era, however, the products on which tariffs were cut were defined as narrowly as possible in an effort to restrict their benefits to a single country.⁴⁰ In 1948, for example, when the United States reduced its tariff on feldspar china, it simultaneously added “value brackets” to its tariff schedule, making the new rate applicable “only to plates, cups, saucers and other items *valued at more than specified amounts.*” This precluded their application to the “bulk” of Japanese imports.⁴¹

That very few products appear on the concessions list of more than one pair of countries also attests to efforts to privatize tariff cuts. During the 1955–56 trade round, for example, the United States cut its tariffs on a total of fifty-nine imports from Britain, Canada, France, and Germany. With one exception, no concession seems to have applied to a good produced by more than one of these countries. Thus, for example, the sets of products on which Britain and France received concessions from the United States were discrete. The British products included

certain chemicals, certain pigments, soaps, China clay, tiles, various iron and steel products, manufactures of brass and bronze, silver-plated ware, electric motors, automobiles, airplanes, office machinery, tobacco machinery, biscuits,

³⁸ Gerard Curzon and V. Curzon, “The Management of Trade Relations in the GATT,” in Andrew Shonfield, ed., *International Economic Relations of the Western World, 1959–1971*, vol. 1, *Politics and Trade* (London: Oxford University, 1976), 185–86.

³⁹ Hoekman and Kosteci (fn. 24), 130.

⁴⁰ U.S. Tariff Commission (fn. 32), 140, 125. Of the 1,014 tariff reductions that the United States agreed to between the wars, almost half involved tariff reclassifications. Daniel Verdier, *Democracy and International Trade: Britain, France, and the United States, 1860–1990* (Princeton: Princeton University Press, 1994), 196.

⁴¹ Bidwell (fn. 22), 54, emphasis in original. The growth of the U.S. tariff code attests to the effort to specialize tariffs. In 1963 it included 6,421 lines. By 2000 it had grown to 10,175 lines, even though the U.S. trade-weighted average tariff rate fell from 11.9 percent to 7.4 percent ad valorem in the interim. U.S. Tariff Commission, *Simplification of the Harmonized Tariff Schedule of the United States* (Washington, D.C.: Government Printing Office, 2000).

wafers, puddings, Scotch and Irish whiskies, mustard, cotton yarn, various linen products, wool wearing apparel, tissue paper, coated paper, filtering paper, golf and lawn tennis balls, leather, shoes, and certain jellies, jam, and marmalades.

On the French list were fishing reels and parts, Angora rabbit hair yarn, velvet and tapestry carpets, razor pile ribbons, carbons and electrodes for producing electric arc lights, velvet ribbons of silk or rayon, and ornamented rayon.⁴²

As Bernard M. Hoekman and Michael M. Kostecki observe, postwar attempts to ensure reciprocity were “quite successful.”⁴³ One measure of the success of efforts to privatize the benefits of tariff cuts is the internalization ratio—that is, the ratio of the sum of all imports that originate in countries with which the importing country exchanged concessions to the sum of total imports on which concessions are made. This ratio was about 90 percent for the United States in both the Dillon and the Kennedy Rounds.⁴⁴ Indeed, some observers believe that the “ability of judicious product selection to internalize the benefits of concessions” explains postwar trade expansion.⁴⁵

That the principal-supplier rule governed postwar tariff bargaining suggests that its benefits were unlikely to be distributed uniformly across its members. It suggests instead that the primary, if not exclusive, beneficiaries of the GATT would be the five states privileged by the principal-supplier rule. It also suggests that the postwar regime was more likely to have coexisted with the interwar blocs than to have replaced them. Below we test whether the evidence is consistent with these hypotheses.

EMPIRICAL ANALYSIS

We begin by describing our data, making clear the ways in which they differ from those used by recent studies of the GATT/WTO. To ensure that these differences do not account for our findings, we initially estimate the models that generate the results these studies report. Immediately below, therefore, we examine the effects of the trade regime on its members as a whole. Next, we disaggregate the members, estimating the effects of the GATT on trade between industrial and other countries.

⁴²Ibid., 125.

⁴³Hoekman and Kostecki (fn. 24), 31.

⁴⁴Ibid. For the internalization ratios for each GATT round through 1967, see J. M. Finger, “Trade Liberalization: A Public Choice Perspective,” in Ryan C. Amacher, Gottfried Haberler, and Thomas D. Willett, eds., *Challenges to a Liberal International Economic Order* (Washington, D.C.: American Enterprise Institute, 1979), 424.

⁴⁵Ibid., 42.

The results reported below are generally consistent with the findings of the existing literature. We then test our hypotheses about the effects of the principal-supplier rule. Readers who want to skip the preliminary empirical analysis can do so at very low cost.

DATA

Our trade data come from the IMF's *Direction of Trade Statistics* (DOTs). We use the U.S. consumer price index (CPI) to deflate and convert them to constant dollars.⁴⁶ For our dependent variable, we use bilateral import data, because they are generally considered to be the most accurate measure of trade. As in Michael Tomz, Judith Goldstein, and Douglas Rivers, our data are in the form of directed-dyads—that is, there are two observations per country pair for each year: imports of country *a* from country *b* and imports of country *b* from country *a*.⁴⁷

Our sample consists of those dyads or country pairs that were members of the interstate system between 1950 and 1994. The end date is dictated by the fact that the WTO formally replaced the GATT in 1995. Because our hypotheses are specific to the structure of the GATT, we use data only through 1994. Our analysis includes system members, because data on the political variables we describe below exist only for these states. We use the Correlates of War 2 Project (COW2) to identify system members.⁴⁸ The appendix lists the 145 countries in our analysis.⁴⁹

Finally, we define as GATT members a larger number of states than do either Andrew Rose or Arvind Subramanian and Shang Jin-Wei, because we do not restrict membership status to those states that concluded the formal accession process.⁵⁰ According to Tomz, Goldstein, and Rivers, the GATT also extended “rights and obligations” to other countries and territories.⁵¹ Among them were current and former colonies of the contracting parties, as well as some countries in the process of accession. As a result, we also code these as GATT members as long as they are system members; that is, we include former colonies as of their date of independence and states in the process of becoming GATT members.⁵²

⁴⁶ CPI for Urban Consumers, all items; 1982–84=100; www.economy.com/freelunch.

⁴⁷ Tomz, Goldstein, and Rivers (fn. 4, 2004a).

⁴⁸ That is, a state is a system member if it is a UN member or its population exceeds five hundred thousand and it receives diplomatic missions from at least two major powers. Correlates of War 2 Project. 2003. State System Membership List, v2002.1, <http://cow2.la.psu.edu>.

⁴⁹ The analysis utilizes directed dyads composed of these countries, for various years depending on system membership and data availability.

⁵⁰ See fn. 4.

⁵¹ Tomz, Goldstein, and Rivers (fn. 4, 2004a), 4.

⁵² To construct their roster of “nonmember participants,” Tomz, Goldstein, and Rivers (fn. 4, 2004a)

BASELINE MODEL

To test whether these changes might account for the findings we later report, we begin, as in Rose, Subramanian and Wei, and Tomz, Goldstein, and Rivers, by examining the impact of the postwar regime on the trade of its members as a whole. We find, as Rose puts it, that trade “cannot be dependably linked” to GATT membership.⁵³ Next, following Rose and Subramanian and Wei, we disaggregate GATT members. We find, as they did, that the GATT has had a positive and significant effect only on trade between industrial countries. This is a product, *inter alia*, of the exclusion of agriculture from the GATT regime, the creation of special rules for labor-intensive industries such as textiles and apparel and the import-substituting industrialization policies of LDCs.

Thus, we begin by estimating this model:

$$\begin{aligned} \ln(IMP_{ijt}) = & \alpha + \beta_1 \text{Log}(GDP_i * GDP_j)_t + \beta_2 \text{Log}(GDPPC_i * GDPPC_j)_t + \beta_3 \text{Log}(\text{Distance})_{ijt} \\ & + \beta_4 \text{Log}(\text{Area}_i * \text{Area}_j)_t + \beta_5 (\text{Land_Contiguity})_{ijt} + \beta_6 (\text{Landlocked})_{ijt} \\ & + \beta_7 (\text{Island})_{ijt} + \beta_8 (\text{Common_Language})_{ijt} + \beta_9 (\text{Common_Colonizer})_{ijt} \\ & + \beta_{10} (\text{Colony})_{ijt} + \beta_{11} (\text{Currency_Union})_{ijt} + \beta_{12} (\text{RTA})_{ijt} + \beta_{13} (\text{GSP})_{ijt} \\ & + \beta_{14} (\text{Both_GATT})_{ijt} + \beta_{15} (\text{One_GATT})_{ijt} + \sum_t \delta_t \text{Year}_t + \varepsilon_{ijt} \end{aligned} \quad (1)$$

The dependent variable is the (natural) log of each country's imports from the other in each year. The right-hand side variables are the logged products of the two countries' real *GDP* and of their per capita *GDP* (*GDPPC*), as well as the log of the great-circle *Distance* between countries *i* and *j*. *Area* equals the product of the land areas of the two countries in square kilometers. *Land_Contiguity* is a dummy variable that equals unity if the two countries share a land border and zero otherwise. *Landlocked* and *Island* indicate the number of countries in a pair that are landlocked or island countries, taking on values of 0, 1 or 2. *Common_Language* is a dummy variable that indicates whether two countries share a common language.

use GATT archival material that is not yet publicly available. They have not responded to our request to allow us to use their data. We cannot be certain, therefore, that our roster of nonmember participants exactly replicates theirs. This is so, because, for example, while they note that “the maximum allowable duration of de facto status changed over time,” their papers do not define exactly how it did so. Similarly, they state that not all members accorded provisional members MFN treatment, but, with one exception, they do not identify these countries (pp. 7–8).

⁵³The quotation is from Rose (fn. 4).

Two dummy variables measure different aspects of colonial relationships: *Common_Colonizer* is unity if countries i and j were former colonies of the same country after 1945 and zero otherwise; and *Colony* equals unity if one country was ever a colony of the other and zero otherwise. *RTA* and *Currency_Union* are, respectively, dichotomous variables that take on a value of one if the two countries belong to the same regional trade agreement or share the same currency at year t and zero otherwise. *GSP* is a dummy variable that represents whether one country grants preferences to the other under the Generalized System of Preferences, agreements that were negotiated under the auspices of the United Nations Conference on Trade and Development (UNCTAD). Our data on these variables comes from Rose.⁵⁴ *Both_GATT* and *One_GATT* measure the effects of GATT on the trade between countries in a dyad that consists of either two of its members or one member and one non-member, respectively. As in earlier studies, we also include year fixed effects, δ_t *Year*. These are dummy variables for each year (except one) in the sample. They capture all unmeasured factors that are expected to exert similar effects on the trade of all countries, including, for example, the oil price shocks of the 1970s and 1980s.

In the first and second columns of Table 1, we report the effects of estimating model 1. Although we include all control variables in each analysis, in the interests of clarity we report only the coefficients on the variables of interest to this paper.⁵⁵ The first column displays the results obtained from an ordinary least squares (OLS) analysis which includes year fixed effects. The second column shows the results of estimating a model that includes dyadic and year fixed effects. Dyadic effects, as we explain in more detail below, control for unobservable characteristics of country pairs.

As in earlier studies, the results in these two columns show that the GATT cannot be “dependably” related to its members’ trade, as both the size and the significance of its effect vary across the columns. Table 1, column 1, shows that the GATT had a large, positive, and statistically significant effect on trade: its members traded about 29 percent more with each other than did countries in the base group (p -value = 0.000). As Table 1, column 2, makes clear, however, this result is not robust to the inclusion of country-

⁵⁴ For details, see www.faculty.haas.berkeley.edu/arose.

⁵⁵ Complete results for any finding we report in the paper are available from the authors.

TABLE 1
THE EFFECTS OF THE GATT ON BILATERAL TRADE
(1950–94)

	(1) ^a	(2) ^b	(3) ^b	(4) ^b
Both GATT members	0.301* (0.033)	0.036 (0.028)	0.034 (0.029)	0.012 (0.030)
One GATT member	0.179* (0.029)	-0.005 (0.023)	-0.011 (0.024)	0.007 (0.024)
Joint democracy			0.167* (0.019)	0.151* (0.019)
Alliance			-0.031 (0.049)	-0.040 (0.049)
MID			-0.019 (0.057)	-0.023 (0.057)
Both GATT and industrial dyad				0.758* (0.070)
Observations	278328	278328	267970	267970
R-squared	0.636	0.861	0.860	0.861

*significant at 1%; Dependent variable: log of imports

^aOLS with gravity-model variables and year fixed effects included but not reported

^bFixed effects analysis using *areg* in STATA 9.0, with observations clustered by directed-dyad and corresponding dyadic fixed effects absorbed into the intercept; gravity model variables and year effects included in estimation but not reported. Newey-West standard errors in parentheses

pair fixed effects: it shows that trade between GATT members is statistically indistinguishable from trade between countries in the base group.⁵⁶

We believe that including dyadic fixed effects produces a more accurate estimate of the effects of the trade regime. Before we explain why, it is important to note that the questions addressed by OLS and fixed-effects analyses differ. An OLS analysis asks about cross-sectional variation: does trade vary between members of country pairs that join the GATT and those that do not? A fixed-effects analysis addresses a time-series question: what is the effect of joining the GATT on trade

⁵⁶To be more specific, the GATT coefficient in Rose's OLS analysis is a statistically insignificant -0.04, (fn. 4), 104. Including dyadic fixed effects produces a statistically significant estimate of 0.15 (fn. 4), 104. We used Rose's data and variable definitions to estimate GATT's impact between 1950 and 1994, the years we analyze here. An OLS analysis with year fixed effects produces a coefficient on GATT of 0.116 (p-value = 0.004). An analysis with dyadic and year fixed effects produces a coefficient on GATT of 0.046 (p-value = 0.150). In Subramanian and Wei (fn. 4), the GATT coefficient that an analysis with country and year fixed effects produces is -0.113, which is statistically significant at less than the 0.05 level (p. 28). Their analysis is difficult to compare directly to ours, as their regressand is the log of real imports of each state and they include data through 2000. Goldstein, Rivers, and Tomz use data from 1948 through 2001 and report a statistically significant estimate on GATT, using a model with dyadic and year fixed effects, of 0.37 (fn. 4, 2004b), 26.

between members of a country pair? We address the second or “within” question here, because fixed-effects analyses avoid the problems that unobserved heterogeneity can create. If dyadic effects are correlated with the included regressors and the error term, omitting them will generate biased and inconsistent parameter estimates.⁵⁷

It seems plausible that the data used here are so correlated. The political relationship between countries, for example, is likely to affect both trade between them and their decisions about whether to join the postwar trade regime. Thus, omitting a control for political relations risks generating inaccurate coefficient estimates. Dyadic fixed effects, however, control for these relations, as well as for all other unobservable characteristics of country pairs that might be correlated with variables we include in our analysis and with trade between their members.

Some studies advocate using country fixed effects or a separate intercept for each country in a dyad to capture a “multilateral resistance term” that reflects a country’s trade costs or its attributes as an exporter or importer.⁵⁸ We use dyadic rather than country fixed effects, for two reasons.⁵⁹ First, country fixed effects do not control for country-pair attributes that can vary in consequential ways and that are quite difficult to measure with any accuracy. Among these are, for example, the historical relationship between two countries and their relative factor endowments. Second, comparisons of different ways to control for heterogeneity find that virtually no difference exists between the estimates that analyses using country fixed effects and those using dyadic fixed effects produce. The latter, however, yields more efficient estimates.⁶⁰

In Table 1, column 3, we report the results of adding to the fixed-effects model three military-political variables: regime type, alliances, and militarized interstate disputes (MIDs). Previous studies have shown that these variables affect bilateral trade.⁶¹ Recent studies of the GATT

⁵⁷ Donald P. Green, Soo Yeon Kim, and David H. Yoon, “Dirty Pool,” *International Organization* 55 (Spring 2001).

⁵⁸ James Anderson and Eric Van Wincoop, “Gravity with Gravitas: A Solution to the Border Puzzle,” *American Economic Review* 93 (March 2003); idem, “Trade Costs,” NBER Working Paper 10480 (2004); L. Mátyás, “Proper Econometric Specification of the Gravity Model,” *World Economy* 20 (May 1997).

⁵⁹ The results in Table 1 are robust to the inclusion of country fixed effects, however.

⁶⁰ Since the data are in the form of directed dyads, dyadic fixed effects are specified separately for each direction. Based on a likelihood ratio test, Cheng and Wall find that a symmetry restriction on the dyadic fixed effects rejects the null (that is, that fixed effects do not differ significantly between the dyad that reflects the imports of a from b and the dyad reflecting imports of b from a). Thus, they argue for including a separate term for each direction of the dyad. See I-Hui Cheng and Howard J. Wall, “Controlling for Heterogeneity in Gravity Models of Trade and Integration,” *Federal Reserve Bank of St. Louis Working Paper 1999-010E* (2004).

⁶¹ Katherine Barbieri and Jack S. Levy, “Sleeping with the Enemy: The Impact of War on Trade,” *Journal of Peace Research* 36 (July 1999); Joanne Gowa and Edward D. Mansfield, “Power Politics and

do not include them, however. Yet omitting them can bias the parameter estimates. The results show that only joint democracy exerts a significant effect on bilateral trade. When both members of a country pair become democracies, their trade increases by about 18 percent (p -value = 0.000). Neither alliances nor militarized disputes have a significant effect on trade.⁶² Including these variables does not produce any notable change in the effects of the GATT: its coefficient remains statistically insignificant.

Next, as in Rose and Subramanian and Wei, we estimate the effects of the postwar regime on industrial and nonindustrial country pairs separately. Conventional wisdom holds that the industrial countries have been the major beneficiaries of the postwar regime, a belief that is consistent with the findings of Rose and Subramanian and Wei. To replicate their analyses, we construct a dummy variable, *Industrial_Dyad*, that is one if a dyad is composed of two industrial countries and zero otherwise. Following WTO practice, we code as industrial countries these states: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.⁶³ We also construct an interaction term that indicates whether both states in an industrial-country pair are GATT members—that is, *BothGATT*Industrial_Dyad*. In Table 1, column 4, therefore, the (omitted) base group consists of non-industrial country pairs that are not GATT members.⁶⁴

The results of our analysis are consistent with conventional wisdom and existing empirical analyses.⁶⁵ Table 1, column 4, shows that the GATT had a significant effect only on trade between its industrial-country members. Their trade is about 113 percent higher (p -value = 0.000) than is trade between members of the base group. In contrast, no

International Trade," *American Political Science Review* 87 (June 1993); Quan Li and David Sacko, "The (Ir)Relevance of Militarized Interstate Disputes for International Trade," *International Studies Quarterly* 46 (March 1999); William Solomon Polacheck, "Dyadic Disputes: An Economic Perspective," *Papers, Peace Science Society (International)* 28 (1978); Brian M. Pollins, "Does Trade Still Follow the Flag?" *American Journal of Political Science* 33, no. 3 (1989).

⁶² In comparing these results with those in the existing literature, however, it is important to note that our analyses do not include Soviet bloc members.

⁶³ As reported in Subramanian and Wei (fn. 4), 9. Belgium and Luxembourg are not in our analysis, however, because the IMF reports their trade separately only in 1997.

⁶⁴ These include dyads where both members are nonindustrial countries or where one is an industrial country and the other a nonindustrial country.

⁶⁵ The coefficient on industrial-country trade that Rose (fn. 4) reports is a statistically significant 0.47 (p. 108). The corresponding statistic in Subramanian and Wei (fn. 4) is 0.322, also statistically significant (p. 29).

significant difference exists between the trade of nonindustrial country pairs in which both states are GATT members (that is, *Both_GATT*) and the trade of dyads in the base group (p-value = 0.673).⁶⁶

Thus, Table 1 shows that the changes we made to the data produce results that are generally consistent with previously reported findings about the impact of the postwar trade regime. It also makes clear that the estimated impact of the GATT is sensitive to the method of analysis used. Analyses that include dyadic fixed effects, which we believe to be appropriate here, show that the GATT had no significant effect on trade between its members as a whole. It did, however, exert a positive and significant impact on trade between industrial states.

For reasons we have already explained, however, we believe that the industrial-country finding understates the skew in the distribution of the GATT's benefits, as it does not take account of the impact of the principal-supplier rule. Moreover, no existing study considers whether the postwar regime actually succeeded in replacing the preceding system of discriminatory trade blocs. We focus on these issues immediately below.

ANALYSIS

To do so, we take a somewhat different approach. In a fixed-effects analysis, only observations that experience a change in the value of an independent variable contribute to its parameter estimate. Thus, the coefficient on industrial-country trade in Table 1, as in existing studies, estimates the impact of the GATT *only* in cases in which at least one member of an industrial-country pair joined the GATT after its inception.⁶⁷ As such, it does not capture the effect of the GATT on trade between its industrial-country "founding" members—that is, Australia, Belgium, Britain, Canada, France, Luxembourg, the Netherlands, New Zealand, Norway, and the United States.⁶⁸ Yet this group includes four of the five members of the "privileged" group, as well as two of the three anchor countries of the interwar blocs and many of their members.

Moreover, because the composition of the industrial-country group, *Industrial_Dyad*, is time invariant, it drops out of the analysis. Thus,

⁶⁶We report Newey-West standard errors applied to panel data, which are robust to heteroskedasticity and autocorrelation. W. Newey and K. West, "A Simple Positive Semi-Definite, Heteroscedasticity and Autocorrelation Consistent Covariance Matrix," *Econometrica* 55 (May 1987).

⁶⁷This is also true, of course, of members of other dyads that either joined the GATT at its inception or were allies or democracies throughout the sample period.

⁶⁸The thirteen remaining industrial countries—Austria, Denmark, Finland, Germany, Greece, Iceland, Ireland, Italy, Japan, Portugal, Spain, Sweden, and Switzerland—acceded to GATT between 1951 and 1967.

the results in Table 1 do not distinguish between the impact of industrial-country status on trade and the effect of the GATT on trade between industrial countries. Instead, the coefficient on the industrial-country variable captures both the effect on trade of the GATT *and* of industrial-country status relative to the base group.

In order to obtain reliable estimates of the impact of GATT on the trade of all the industrial countries, including, in particular, the members of the privileged group and the interwar blocs, we extend our data backward in time. We add data on dyadic interwar trade collected by Albrecht Ritschl and Nikolaus Wolf.⁶⁹ Their data include information on the standard-gravity model variables for thirty countries in 1928, 1935, and 1938, including twenty of the twenty-one countries in our industrial-country sample. We add to these data information about joint democracy, alliances, and MIDs in each of the three interwar years.

Together, the interwar and the postwar data enable us to address the issues of primary importance to this article. We can test whether the trade the GATT fostered was skewed toward the small subset of industrial states that the principal-supplier approach privileged, and we can determine whether the postwar regime succeeded in destroying the system of trade blocs that preceded it.

These data do not allow us to use a standard fixed-effects approach, however, because the dummy variables for privileged-group and interwar-bloc membership and for GATT founding members remain time invariant.⁷⁰ Thus, we use a "treatment-effect" approach, following several recent studies of, for example, the impact of currency unions on trade.⁷¹ In pure experimental settings, a treatment-effect approach would randomize individuals into control or treatment groups. For nonexperi-

⁶⁹ We are grateful to Albrecht Ritschl and Nikolaus Wolf for making the data available to us. Iceland is not included in the Ritschl and Wolf data, so we exclude it from the analysis. The following states are in the Ritschl-Wolf data set but not in ours: Argentina, Belgium, Turkey, and several members of the former Eastern bloc (that is, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, the Soviet Union, and Yugoslavia). Albrecht Ritschl and Nikolaus Wolf, "Endogeneity of Currency Areas and Trade Blocs: Evidence from the Inter-War Period" (Manuscript, Humboldt University 2003).

⁷⁰ Panel data analysis can accommodate time-invariant variables using a technique that Hausman and Taylor developed; Jerry A. Hausman and William E. Taylor, "Panel Data and Unobservable Effects," *Econometrica* 49 (November 1981). However, their method assumes that not all explanatory variables are correlated with the fixed effects, an assumption that is not tenable here. The time-invariant nature of these variables also precludes an estimation based on first-differencing the data to account for the possible endogeneity of the GATT regime. Scott L. Baier and Jeffrey H. Bergstrand, "Do Free Trade Agreements Actually Increase Members' International Trade?" (Manuscript, 2005).

⁷¹ Ritschl and Wolf (fn. 69); Volker Nitsch, "Honey, I Shrunk the Currency Union Effect on Trade," *World Economy* 25, no. 4 (2002); Torsten Persson, "Currency Unions and Trade: How Large Is the Treatment Effect?" *Economic Policy* 33 (October 2001).

mental data, studies of labor markets have developed methods to isolate “the effect of the treatment on the treated.”⁷²

The Ritschl and Wolf approach that we adopt here is one such method. To make this approach clear, we briefly describe their application of it. Using a pooled data set for the years 1928, 1935, and 1938, they examine whether the formation of the interwar blocs was endogenous to trade patterns that preceded the Great Depression. To do so, they first specify the “control” groups by constructing dummy variables to indicate the interwar blocs—that is, the gold, sterling, Commonwealth, Reichsmark, and exchange-control blocs. The gold bloc includes Belgium, France, the Netherlands, Poland, and Switzerland. In the sterling area are Australia, Britain, Denmark, Finland, Ireland, New Zealand, Norway, Portugal, and Sweden. Five countries belong to the British Commonwealth: Australia, Britain, Canada, Ireland, and New Zealand. The Reichsmark bloc includes Austria, Bulgaria, Germany, Hungary, Romania, and Yugoslavia. The members of the exchange-control bloc are Denmark, Finland, Italy, the Netherlands, Norway, Spain, Sweden, and Turkey, and all Reichsmark-bloc states except Bulgaria.

Ritschl and Wolf set the values of each group dummy to unity for all years in the sample. This variable captures trade levels before currency arrangements are operative or after they expire. Next, they specify the “treatment” by constructing a dummy variable that is unity for the 1930s, the period in which the various blocs were in effect. They interact each group dummy variable with the dummy variable for the 1930s, which creates a structural break for the years in which the currency arrangements were in force. It is the coefficient on this interaction term that measures the effect of the treatment—that is, the effect of bloc formation on interwar trade. Thus, a bloc affects trade among its members only if the estimate on this interaction term is statistically significant.

Following the Ritschl and Wolf approach, we pool our data across the years 1928, 1935, 1938, and the years between 1950 and 1994, generating a maximum of forty-eight observations per directed-dyad. The dummy variables that serve as our “control” groups indicate whether the members of a country pair were: (1) members of the privileged group; (2) “founding” members—that is, countries that joined the GATT at its inception; or (3) members of one of the five interwar blocs: the Commonwealth, Reichsmark, gold, sterling, and exchange-control

⁷² Richard Blundell and Monica Costa Dias, “Evaluation Methods for Non-Experimental Data,” *Fiscal Studies* 21, no. 4 (2000).

blocs.⁷³ Values on these variables are set to unity for each group for all years. They are “control” groups in the sense that they capture the time-invariant characteristics of each group. As such, they are essentially the “fixed effects” for the country pairs in each group; Ritschl and Wolf argue that this allows for an unbiased estimation of the model.⁷⁴

To specify the “treatment,” we create another dummy variable that is set to unity for the years in which the GATT existed (that is, 1950–94; *GATT years*).⁷⁵ To measure the “treatment effect,” or the effect of GATT membership, we interact each of the group dummy variables with the variable *GATT years*. A significant difference can be said to exist between trade under the GATT regime and interwar trade only if the coefficient on the relevant interaction term is statistically significant, controlling for all other standard gravity-model variables.

With three exceptions, we do not interact the dummy variable for *GATT years* with either the gravity model or standard political variables, because we have no *ex ante* reason to believe that the effects of these variables differed after World War II. We do apply the structural break—the interaction term—to each of the two GDP terms, as the interwar period depressed the effects of increasing income on trade. We also apply the structural break to the alliance term, as previous studies suggest that the impact of these coalitions varies between the interwar and postwar periods.

Table 2 reports the results of an analysis of bilateral trade that includes data from the interwar and postwar periods. It presents estimates for the control groups and treatment effects (*GATT years*).⁷⁶ As before, we do not report results but we do control for the impact of the standard gravity-model variables, as well for landlocked and island status and joint democracy, whether states share a border or a common language, or whether states have engaged each other in a MID.⁷⁷ The base group consists of industrial-country pairs composed of states that did not belong to any of the interwar blocs and that include at least one state that joined the GATT after its inception.

⁷³The privileged group and the founding-member group are mutually exclusive. The former consists of pairs of privileged-group members (Britain, Canada, France, Germany, and the United States). The latter consists of country pairs formed among founding members that were not in the privileged group, as well as founding members paired with each member of the privileged group.

⁷⁴Ritschl and Wolf (fn. 69), 9.

⁷⁵Our post-World War II data begin in 1950; hence, we use this as the first of the GATT years.

⁷⁶An F-test for all the interaction terms (for GDP and group terms) is $F(10, 17356) = 20.04$ (Prob > F = 0.0000), which shows that all the interaction terms are jointly statistically significant. An F-test for all the interwar bloc variables (main and interaction effects) is $F(10, 17356) = 29.80$ (Prob > F = 0.0000), which indicates that the effects of the control groups and their corresponding interaction terms are jointly statistically significant.

⁷⁷The MID variable is insignificant. Joint democracy exerts a statistically significant impact on trade, increasing it by about 17 percent.

TABLE 2
THE GATT AND INDUSTRIAL COUNTRY TRADE
(1928, 1935, 1938, 1950–94)^a

GATT founding member dyad	0.042 (0.112)
GATT years*founding member	–0.105 (0.117)
Privileged group	–0.421** (0.159)
GATT years*privileged group	1.365** (0.182)
Exchange-control group	–0.233** (0.070)
GATT years*exchange-control group	0.233** (0.073)
Gold bloc	–0.215 (0.160)
GATT years*gold bloc	0.388* (0.162)
Commonwealth group	1.549** (0.227)
GATT years*commonwealth group	–1.040** (0.234)
Sterling bloc	0.385** (0.096)
GATT years*sterling bloc	–0.726** (0.108)
Reichsmark bloc	0.780** (0.167)
GATT years*Reichsmark bloc	–0.061 (0.180)
Alliance	0.164 (0.139)
GATT years*alliance	0.305* (0.142)
GATT years	–7.464** (1.618)
Observations	17390
R-squared	0.74

*significant at 5%; **significant at 1%

^aDependent variable: log of imports. Not reported: GDP, GDPPC and their interaction terms; distance; common language; island; landlocked status; land area; border; democracy; MIDs; and decade dummies for the 1960s, 1970s, 1980s, and 1990s.

As in previous studies, the table shows that trade between allies was significantly higher during the cold war than it was between the wars (p -value = 0.032). With respect to the variables of principal interest here, the results in Table 2 are consistent with our hypotheses about the impact of the principal-supplier rule. They show that GATT membership exerts a positive and significant effect on the trade of only the five states privileged by the rule.⁷⁸ Controlling for all the variables noted above, trade between members of the privileged group was about three times higher after World War II than it was between the wars (p -value = 0.000). In contrast, GATT membership exerts no significant effect on the trade of other members of the founding group relative to their pre-1945 trade (p -value = 0.366). These results are robust to an analysis that excludes the interwar blocs, as well as to an analysis that includes the EC6.⁷⁹

Table 2 also shows that the GATT did not eliminate the interwar trade patterns that had been a large part of its *raison d'être*.⁸⁰ Ex ante, the effects of the Commonwealth bloc would seem most likely to endure after 1945, because, as we noted above, the GATT protected imperial preferences. Table 2 shows, however, that trade between members of the Commonwealth decreased after World War II relative to the interwar years (p -value = 0.000). As we report below, however, their trade remained significantly higher than did trade between members of the base group under the GATT regime. In contrast, the interwar and postwar trade of Reichsmark members is statistically indistinguishable (p -value = 0.735).⁸¹ The exchange-control and gold blocs exerted positive and significant effects on trade between their members after the war (p -values = 0.001 and 0.016, respectively). Indeed, the sterling bloc was the only trading bloc that experienced a significant net decrease in trade relative to its interwar counterpart. While its members traded about 38 percent more than did members of the base group before 1939, their trade thereafter

⁷⁸ These results are robust to the inclusion of country or dyadic fixed effects for countries that are not members of any of the groups in the analysis. In our sample, these countries are Greece and Japan.

⁷⁹ We did not include the European Community in this analysis, because it did not come into existence until 1958 and because its membership did not remain stable over the postwar period. We have, however, tested whether our results are robust to the inclusion of the EC6, since it formed relatively early in the postwar period. We find that the EC had a large positive (0.84) and significant (p -value = 0.000) impact on its members' trade. Our results are robust to including the EC with these exceptions: the treatment effect for the gold bloc becomes insignificant (p -value = 0.772); the coefficient on the interwar alliance term becomes significant (p -value = 0.008), while its treatment effect becomes insignificant.

⁸⁰ Eichengreen and Irwin used interwar and early postwar trade to predict trade in 1949, 1954, and 1964; Barry Eichengreen and Douglas A. Irwin, "Trade Blocs, Currency Blocs and the Reorientation of World Trade in the 1930s," *Journal of International Economics* 38 (February 1995); and idem, "The Role of History in Bilateral Trade Flows," in Jeffrey Frankel, ed., *The Regionalization of the World Economy* (Chicago: University of Chicago Press, 1998).

⁸¹ Our sample includes, however, only two Reichsmark bloc members (Austria and Germany).

TABLE 3
EFFECTS OF GATT MEMBERSHIP ON INDUSTRIAL-COUNTRY TRADE

GATT founding members	-6%
Privileged group	94%*
Commonwealth bloc	51%*
Sterling bloc	-34%*
Reichsmark bloc	72%*
Gold bloc	17%*
Exchange-control bloc	-0.01%*

*significant at 1 percent

fell by 73 percent. Thus, the postwar trade regime incorporated rather than replaced elements of the interwar trade system.

Based on the estimates in Table 2, Table 3 reports for each treatment variable its net effect on postwar trade relative to the base group and the corresponding significance level.⁸² It shows that trade between privileged-group members is about 94 percent higher than is the trade of the base group after World War II (p-value = 0.000). In contrast, postwar trade between other founding-group members of GATT is about 6 percent lower than is trade between members of the base group, an insignificant difference (p-value = 0.343).

During the same period, Commonwealth members continue to trade about 51 percent more with each other than do base-group members (p-value = 0.000). The corresponding statistics for Reichsmark and gold-bloc members are about 72 percent (p-value = 0.000) and 17 percent (p-value = 0.000), respectively. Relative to the base group, sterling-bloc members trade about 34 percent less after the war (p-value = 0.000), and trade between members of the exchange-control bloc is 0.01 percent lower under the GATT regime (p-value = 0.001).⁸³

That several interwar blocs continued to exert an effect on trade under the GATT is, as we argued above, related to the principal-supplier

⁸²To calculate these values we sum the coefficients of the control and treatment effect variables (that is, the group dummy and its corresponding interaction term). The corresponding significance level is based on F-tests for the joint significance of each group's control and treatment effect estimates. They are statistically significant for all groups, except for founding members: $F(2,17356) = 1.85$ (Prob > F = 0.152); privileged group: $F(2,17356) = 121.52$ (Prob > F = 0.000); exchange-control bloc: $F(2,17356) = 5.78$ (Prob > F = 0.003); gold bloc: $F(2,17356) = 11.85$ (Prob > F = 0.000); Commonwealth bloc: $F(2,17356) = 62.00$ (Prob > F = 0.0000); sterling bloc: $F(2,17356) = 35.71$ (Prob > F = 0.000); and Reichsmark bloc: $F(2,17356) = 107.71$ (Prob > F = 0.000).

⁸³To ensure that these results are not due to the abnormally low levels of trade during the Great Depression, we reanalyzed the data using only 1928 trade as the reference level. The results are robust, with these exceptions: the coefficient on alliances becomes positive and statistically significant for the interwar period (p-value = 0.048); its treatment effect is insignificant (p-value = 0.960).

protocol. It is also due, we believe, to the nonrandom process in which states originally entered the blocs. Some blocs were endogenous—that is, they linked states that had traded at unusually high levels with each other even before the Great Depression. In such cases, the blocs institutionalized rather than caused high levels of trade. According to Ritschl and Wolf, this applies to the sterling, Commonwealth, and Reichsmark blocs.⁸⁴ The pattern differs, however, in other cases: the trade of gold and exchange-control bloc members was indistinguishable from that of other countries until they actually became bloc members, after which it increased significantly.⁸⁵

CONCLUSION

Recent empirical studies of the postwar trade regime disagree about its effects, a disagreement that primarily reflects differences in how they define its members. Studies that code only states that formally acceded to the regime as members show that the GATT/WTO did not have any significant impact on their trade. Studies that use a broader definition conclude that the postwar regime did indeed exert a significant impact on their trade.

In this article we have examined the effects of the GATT from the perspective of the rules that governed negotiations under its auspices. Thus, we focused on the small set of countries that the principal-supplier rule benefited. Using both interwar and postwar data and defining members broadly, our results show that the distribution of the benefits of GATT membership was severely skewed: the postwar regime privileged trade expansion between members of a very small set of states. We also show that the GATT regime replaced the interwar system *de jure* but not *de facto*, as several interwar blocs continued to influence trade patterns after 1945.

Our findings raise questions about the utility of international institutions. The trade regime has been perhaps the paradigmatic example of a welfare-enhancing international institution, despite the fact that conventional wisdom has long held that its principal beneficiaries were the industrial countries. We show that its benefits were even more nar-

⁸⁴ Ritschl and Wolf (fn. 69), 11.

⁸⁵ The Ritschl and Wolf results (fn. 69) are sensitive to model specification. When they control for trade diversion, they find that trade within the Commonwealth bloc, for example, increases significantly after its formation (p. 24). Eichengreen and Irwin (fn. 80, 1995) find that the formation of the Commonwealth and Reichsmark blocs exerted a positive and significant effect on the trade of its members, while the formation of the currency blocs did not (p. 15).

rowly concentrated and that the regime coexisted with the system it was intended to supplant. Thus, our analysis suggests that what fueled the postwar regime was an effort to enhance the welfare of the major trading nations, rather than an attempt to resolve market-failure problems. As a result, the GATT can be understood primarily as an exercise in great power diplomacy.

APPENDIX

COUNTRIES INCLUDED IN TABLE 1 ANALYSIS

Algeria	Congo, Dem. Rep.	Haiti
Angola	Of (Zaire)	Honduras
Antigua And	Costa Rica	Hungary
Barbuda	Côte d'Ivoire	Iceland
Argentina	(Ivory Coast)	India
Australia	Cyprus	Indonesia
Austria	Denmark	Iran
Bahamas	Djibouti	Iraq
Bahrain	Dominica	Ireland
Bangladesh	Dominican Rep.	Israel
Barbados	Ecuador	Italy
Belize	Egypt	Jamaica
Benin	El Salvador	Japan
Bolivia	Equatorial Guinea	Jordan
Botswana	Ethiopia	Kenya
Brazil	Fiji	Korea, South(R)
Bulgaria	Finland	Kuwait
Burkina Faso	France	Lao People's Dem.
Burma (Myanmar)	Gabon	Rep.
Burundi	Gambia	Latvia
Cameroon	Georgia	Lesotho
Canada	Germany	Liberia
Cape Verde	Ghana	Libya
Central African Rep.	Greece	Lithuania
Chad	Grenada	Madagascar
Chile	Guatemala	Malawi
China	Guinea	Malaysia
Colombia	Guinea-Bissau	Maldives
Comoros	Guyana	Mali

Malta	Poland	Switzerland
Mauritania	Portugal	Syria
Mauritius	Romania	Tanzania
Mexico	Rwanda	Thailand
Mongolia	Samoa	Trinidad & Tobago
Morocco	Sao Tome & Principe	Tunisia
Mozambique	Saudi Arabia	Turkey
Namibia	Senegal	Uganda
Nepal	Seychelles	United Arab
Netherlands	Sierra Leone	Emirates
New Zealand	Singapore	United Kingdom
Nicaragua	Solomon Islands	United States
Niger	Somalia	Uruguay
Nigeria	South Africa	Vanuatu
Norway	Spain	Venezuela
Oman	Sri Lanka	Yemen, Republic of
Pakistan	St. Kitts & Nevis	Yugoslavia,
Panama	St. Lucia	Socialist Fed. Rep.
Papua N. Guinea	Sudan	of
Paraguay	Suriname	Zambia
Peru	Swaziland	Zimbabwe
Philippines	Sweden	